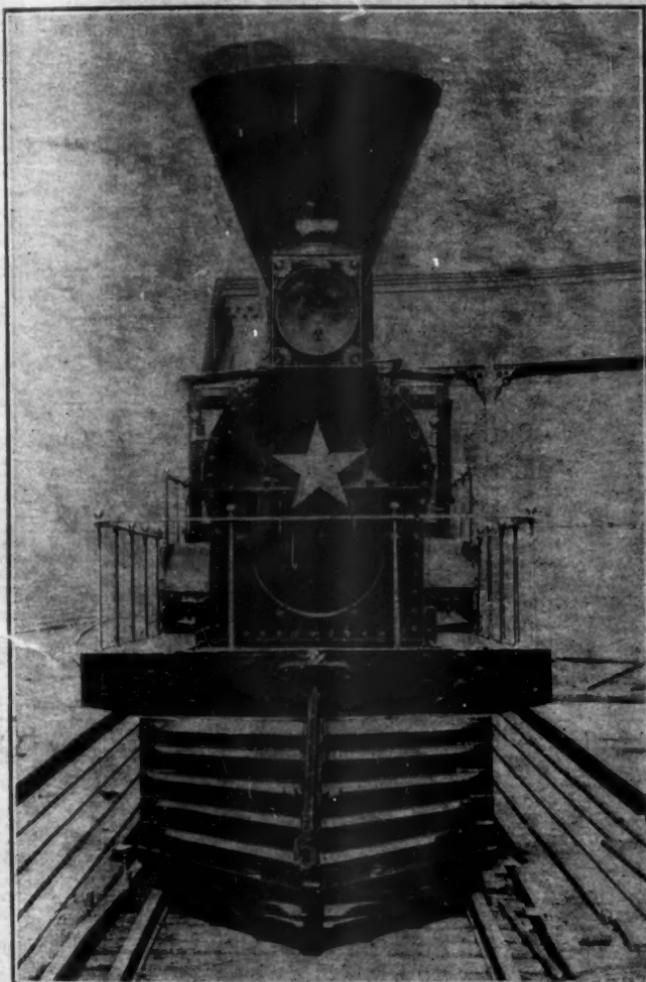


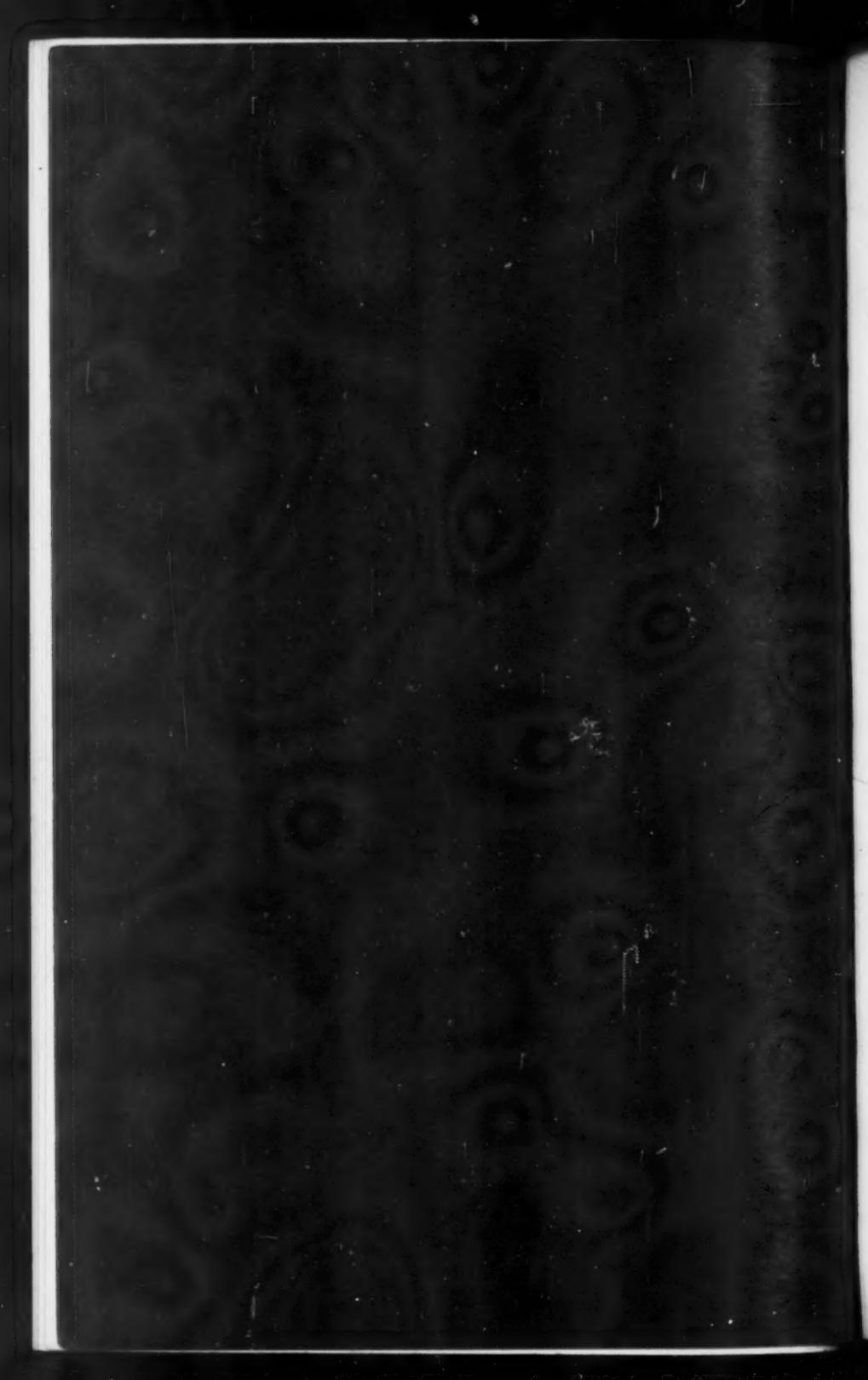
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BULLETIN No. 6



THE RAILWAY AND LOCOMOTIVE
HISTORICAL SOCIETY





THE RAILWAY
AND LOCOMOTIVE HISTORICAL
SOCIETY



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Copies of this Bulletin may be procured from either Mr. Herbert Fisher or Mr. J. W. Merrill.

It is with a great deal of pleasure that we place before our members our Sixth Bulletin. Apparently they are appreciated for letters have been received asking when it was to be ready for distribution. Members are interested in it because we are receiving much that is of value and interest. We only hope that this interest will be sustained.

In our last bulletin, the article written by Mr. Bishop has shown more than a passing interest with our members. The early English engines on our American railroads were larger than many of us supposed. While Mr. Bishop has given us another contribution, one of our members has added materially by furnishing a U. S. Government report listing all of the locomotives in the country in 1838. This furnishes the student of early locomotives a valuable check list as to the power on our first railroads.

To the majority of our members, the collecting of old photographs, lithographs, and data is a hobby. That is as it should be. Our best physicians advise that all of us have a hobby. If however, the hobby takes over the soul of a man, makes him avaricious for the acquisition of material things that go to make up his hobby and heedless and unmindful of the rights and hard work of others, then this party no longer has a hobby. His soul and mind are filled with greed, the same as the miser. It is unfortunate that there are such people. Such people in-

terested who pretend to be interested in the objects of this Society, but whose chief interest is themselves. These facts are called to the attention of our members on account of recent actions of parties described. The Directors of this Society use their best judgement in the election of members. Our members are furnished with identification cards and also with membership lists and in case any of our members are approached by anyone whose honesty or sincerity of purpose is questioned, your officers are in a position to give you such information as you may wish, and some of your officers know well, by past experience, the wiles, habits and methods used by these men.

The following account of a journey over the Baltimore & Ohio R. R. in 1832 will be of interest to our members. Through the kindness of Mr. C. L. Winey the story is reproduced and through the courtesy of Mr. Esender the views of the Carrollton Viaduct are shown. In addition, Mr. Esender has allowed the Society to reproduce a photograph of the Mt. Claire Depot showing the Tom Thumb engine and first car leaving this depot on its initial trip in 1831. This was the first locomotive and car constructed in this country. This marked an important event in America's history of transportation (note the few railroad and city officials attending this affair) and it is with a great deal of pleasure that this print can be reproduced. The Carrollton Viaduct is shown as it appeared in 1829 and also as it stands today, still in service and used today by far heavier power and cars than was ever intended for it.

In connection with Mr. Esender, your Editor wishes to announce that this gentleman has spent years in compiling a history for the purpose of putting it into an Educational Moving Picture entitled "The Evolution of Transportation" and the early history of America's first railroad. Mr. Esender can show the early modes of transportation and contrast them with our modern methods of transportation. His work is a worthy object and deserving of the support of this Society. Coming celebrations that will be held in the next few years will make this film exceedingly interesting. Our members are urged to help him with this object in any way possible. Communications can be sent to him direct—Mr. C. N. Esender, 1201 West 9th St., Los Angeles, Cal.

Narrative of An Excursion on the Baltimore & Ohio Railroad.

Started from the office of the Rail Road Company, in Pratt street, on Thursday morning, 13th March, 1832, at half past 9 o'clock, in one of the four cars running together, the number of the passengers amounting to 80, and each car drawn by a single horse. The atmosphere clear and cool, our course due west for about half a mile on that street, in the middle of which a single rail-track has been laid on granite blocks. Reached the old depot, at the upper extremity of the said street, where we changed our course to a south-west direction. This depot stands 66 feet above tide water, and forms the commencement of the first section of the road. For the distance of eight miles, the location of this road runs on a perfect level, except that through the three deep cuts, where small summits are introduced, to secure the drainage from the road, the remainder of the road lies on various grades. This part of the section of the road was the most expensive, owing to the hilly surface of the ground. Passed by the scales on which cars are weighed when carrying burdens, to ascertain the tonnage of their loads. This ingenious construction deserves notice.

We rode on the first embankment of this road, to the left of which we noticed a house, of somewhat Gothic construction, where sulphur waters are found. We passed through the first cut of the road, and soon rode over the Carrollton viaduct, about one mile and a half from Pratt street.

Carrollton Viaduct.

This viaduct, of which a handsome view is here given, has but a single arch of 80 feet span, sprung over Gwynn's falls, or creek, and forms a solid and beautiful superstructure of granite stone, 65 feet high, and 300 feet long.* Entered soon after on another excavation, and came in sight of a wooden bridge, of a new and ingenious construction, laid on abutments resting on the said excavation, which serves for a passage to the turnpike road from Baltimore to Washington, and we found, thus far,

*The superintending engineer of all the works on this road is Caspar W. Wever.

that this mode of travelling, sometimes over ridges, at other times in deep artificial chasms, now over bridges, and soon after under them, was quite a novelty, and highly interesting.

After awhile we again changed our course to the west, and some distance further we entered the largest cut on this road. Its height is 70 feet perpendicular, on which account it is not improperly called the Deep Cut. It forms the most expensive portion of the works on this gigantic undertaking. Immediately after, we passed over the two highest embankments of this route; the largest of the two is on Gadsby's run, at the end of which we again crossed the Washington turnpike; but this time on a level. A little further, being accounted six miles from Pratt street, which is the distance fixed for the relay, the horses were changed in the short space of two minutes. Refreshments are here kept for the accommodation of travellers. From this part of the road an extensive view is obtained over the country below, of mills, and a forge on Patapsco river, and farther down, of Elk Ridge Landing. One mile further on we passed in sight of the Avalon Iron Works, on the small, but beautiful Patapsco river. Here the eight miles of the dead level ends; and we began to ascend, at the grades of 13 to 17 feet per mile. Having reached the borders of the river, we had on our right several abrupt and rocky hills, the bases of which have been cut to open a passage for this road; and soon came in sight of the noted Buzzard Rock, the summit of which is at least 100 feet above the river. Still further on, we entered the handsome

Patterson Viaduct.

This viaduct is built across the river. It has four arches, forming a superstructure of fine granite stone, of 360 feet in length. Its height is 40 feet above the water mark.

After having passed this viaduct, we found ourselves on the left bank of the stream, and we never lost sight of handsome scenery. On the right, we had in view the Thistle Cotton Factory, the property of the Messrs. Morris. To the left, a fine prospect of woodland scenery delighted our eyes, consisting of gigantic oaks, luxuriantly growing on the several hills, inclining towards the river, the ascent of which begins at both

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banks, right and left of the stream, and progressively rise, by unequal steps; and whilst these hills extend about 3 miles from the river each way, and when at the highest elevation they are about 300 feet above the water mark of the stream; they form a considerable hollow or valley, six miles in breadth and 300 feet deep, having the stream in the centre along its course.

Met, here and there, as we proceeded, several considerable cuts, made into the large masses of granite rocks, for the passage of the road, from which Baltimore is partly supplied, and by being worked by many artificers, the scene was considerably enlivened. Now to the right, we viewed another Cotton Fac-



Carrollton Viaduct—1829.

tory, remarkable for the height of one of its buildings, and for having a handsome artificial fall of water. It is situated like the preceding, on the other side of the river, and belongs to Mr. Edward Gray.

Ellicotts' Mills.

Arrived at Ellicotts' Mills, 10 miles by the turnpike from Baltimore, where a relay was waiting for us. We travelled the distance, from the place of our departure to this spot, in

one hour and thirty minutes, nearly 14 miles, which is at the rate of about 9 miles an hour. From the three arch stone Oliver's Viaduct, built here through an embankment, raised on the site of this place, for giving passage to a run, as well as for the Baltimore and Frederick turnpike, we had the pleasure of observing the difference between the slow paced vehicles passing below us on the turnpike, and the easy and rapid movement of our cars. This spot of ground, as containing an academy for classical education, several large stone houses, stores, two splendid hotels, a number of flour, merchant, linseed and other mills, richly deserves the name of town. Indeed, laying aside the immense worth of these useful establishments, the neatness of the handsome group of buildings of different sizes, forms and colours, located at the intersection of the river Patapsco, and of the rail and turnpike roads; the two great thoroughfares of the west of this vast continent, and at the foot of a high and picturesque scenery, attract the attention and admiration of the traveller.

Leaving, with regret, this romantic spot, we immediately entered the second section of this road, the grades of which are various, but none higher than 21 feet per mile; and as soon as we reached the banks of the river again, our eyes were feasted with the sight of more splendid scenery than before. To the right, we viewed the covered bridge of the turnpike, and we could but admire, at a few rods upwards, a most brilliant sheet of water formed by a dam, which, rising the stream, pours its argentine contents from the brims of its smooth surface into the rugged one below.* This dam turns part of the water of said river into a canal, which glides through the lower part of the town, and imparts motion and life to the machinery it meets in its course. The scenery, on progressing a few steps farther, is new and striking, by reason of the sight of a large opening, cut through a solid and rocky spur, which opposed the passage of the road. The east side, called the Tarpean Rock, stands isolated on the banks of the river, the bulky head of which, projecting several feet out of the perpendicular, menaces destruction. The other side has nothing remarkable but its height,

*The view of the two water-falls we are going to describe, is enchanting, when taken from this end of the turnpike's bridge.

which is about 80 feet, and for having the name of the constructor of the work chiseled on its large forehead.*

To the left, after the passage through the above chasm, our eyes were immediately fixed on a magnificent cascade, making the greatest contrast imaginable with the sable looking establishment adjoining, which is a rolling-mill, situated on the very banks of the opposite side of the river, and belonging to the Messrs. Ellicotts.

Pursuing our course about a quarter of a mile farther, the splendour of another artificial water-fall, indicates the good purpose for which it was formed. It sets in motion the ma-



Carrollton Viaduct—1923.

chinery of the Union Cotton Factory, belonging to a company in Baltimore; which, with some surrounding buildings, constitutes a handsome landscape. The view farther up the river offers a very different aspect. We entered a woody and narrow defile, and found ourselves hemmed, as it were, within the enclosure of hills and steeps, cut asunder for the passage of the road, and in vain, alas! should we have looked here for a retreat—none could we have obtained but under the shelter of

*The expense of this cut through that spur, although but a trifle in comparison with the cost of the works on the other parts of this road, is well calculated to stand as a lasting monument of the enterprize of the Baltimoreans, as well as of the spirit of the age for internal improvements.

the trees. However, we were at last relieved, by pursuing our course, from that painful situation, by the agreeable sight of the industry of man. It is a new building, situated in this forlorn forest, on the banks of the purling stream, and prepared for a Cotton Factory. This untenanted building owes its mushroom birth to the rail-road. Farther up the stream we met, with delight, a cottage where man dwells. Could it be otherwise? Every object around him seemed to smile! To our astonishment we met here among these steep hills what is seen only on flat and good soil. I mean lime stone and lime kilns, they belong to judge Dorsey; they will be of great service along the course of the rail road and to Baltimore.

Two wooden bridges are seen on this river, and at some distance apart. One of them nearly worn out by age—the other, probably a temporary one, and the property of the individual who owns the woodland on the opposite side of the river. This conclusion is drawn from a rail track, laid on said bridge, and from some piles of fire-wood, lying along side of this road, prepared for the Baltimore market, which, without this rail road, had never been removed from its natural soil.

Opposite to this place the river forks at a small distance from the road—the left fork is called the Western, or Poplar Spring Branch. It is opposite to this fork that the second section of the road ends. The third section we enter after this ascends at various grades, but none higher than 37 feet per mile. At this place the horses are changed, being 12 miles from Ellicotts' Mills; and at a small distance therefrom, passed the said branch over a stone viaduct, where it now runs to our left.

Half-way House.

Arrived at the half-way house, where we stopped for dinner. Here the ground is 368 feet above tide water, and 31 $\frac{1}{4}$ miles from Baltimore depot, in Pratt street, near the basin, and 30 miles from Frederick. Both the tavern and plantation belong to Mr. Sykes, hence the name of Sykesville has been given it. It is well situated, having its front immediately on the road, and its opposite side on the borders of the stream. A merchant mill is seen at a little distance from it. Two miles further we changed horses; and here, on account of the country being high and healthy, one feels emerged from the heavy atmosphere of a

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narrow and deep valley through which we have pursued our course, and on account of the surface being less inclined than the side of the hills, at the foot of which we passed, man is encouraged to pursue the useful and noble employment of the culture of the soil. At this part of the road they have raised a small embankment, which, by barring the too meandering course of the branch, cause it to follow another channel, and having lost a portion of its strength, and with it the power of erosion, instead of corroding, as it does below the forks, the crust of our globe, and having formed by degrees, in the course of ages, the deep valley through which we passed, serves here to enliven



"Mount Clare Station."

the scene, by forming mill ponds and cascades, as well as passing among the fields, and watering the meadows in its course.

We passed two mills, separated by no great distance. The small falls, as well as the reservoirs they form above them, give an agreeable zest to the view. At the distance of 38 miles from Pratt street, a change of horses takes place, where stabling has not yet been provided. About this part, granite rocks no more delight the prospect; owing to the approach of a ridge in front of us, the stones of which generally partake of those standing on mountains, called quartz, forming the heads of

streams. Here the sight of a handsome farm strikes the view with delight. It is the property of Mr. Cornelius Mercer.

Being now near the head of the branch, which we have followed closely so far, we rode over an embankment, crossing, nearly at right angles, the Baltimore and Frederick turnpike; at the end of which we arrived at the foot of the inclined plane. A viaduct has been erected through this embankment, for the passage of the said turnpike.

Here two horses are added to each car, to effect the ascent over the plane. We thought the expense, in regard to this mode, too great, on account of the quantity of horses and attendants required for such an arduous undertaking. However, it ought to be observed, that the present arrangement is to be considered merely on a temporary footing, until the power of a stationary engine is applied at the head of the inclined plane, which will draw up and let down the cars.

Foot of the Plane.

From the foot of this plane we changed our course in a westerly direction, and ascended the inclined plane, which is upwards of $1\frac{1}{2}$ miles long, by several steps or grades. The height of this plane is 179 feet. Arrived at the summit of the plane, called Parr Spring Ridge, where an area is found 600 feet diameter, and on which the stationary engine is to be located. We staid here for a minute or two, to fix the breakers under the body of the cars, for preventing too precipitous a descent. For this purpose, a trusty man is placed behind the car, to assist in the regulation of the wheels, by bearing on them, in proportion to the grades of the descent of the plane; this area is the highest place on the route, being 813 feet perpendicular above tide water, and forms the end of the three sections. From this, the prospect is extensive, chiefly to the west side, where it is terminated by both the remote sight of the Cotoctin and Blue Ridge, about 18 miles distant, and of the South Mountain, this last being about six miles further to the west, and being 1200 feet above tide water, or 200 feet higher than the Cotoctin ridge, it is, of course, perceived above the latter. Below the summit of this ridge, there is a valley; the name of which is commonly taken from the river which waters it, and

it is called Monocoey. This stream probably formed that valley, by the assistance of its collateral branches, the rains being both the mechanical and chemical agents, as I will presently show. This valley is at the present time about 700 feet deep, in the lowest place, and will become still deeper on account of the rains, which wash away the earth from its surface into the various branches. These convey it into the Monocoey, and at last it reaches the sea, where it is deposited. Whilst the top of the mountains, at the same time as being composed of a rocky substance, cannot be depressed, of course they remain nearly entire, and of the same height. The same depression takes place in the beds of streams, although they be composed of a solid stony substance, as they nearly all are on this side of the Alleghany mountains; because the fragments of hard matter, detached from the summit of ridges by the frost, the water being then the chemical agent, causing a separation of the parts, they roll on the bed of the said streams, and scrape and file them off, according to the degree of velocity, given by both the bulk and gravity of the water received in them in time of floods; hence the Monocoey, as receiving in its bosom both the waters, as well as the corroding agents of its collateral branches, must grow deeper in due proportion.

By the foregoing occurrence, the streams having their beds depressed, in proportion to the water received, it follows that the Monocoey must flow into the Potomac; because the last is a larger stream, and is capable of receiving a greater quantity of the said agents than the Monocoey. The Potomac has a declivity into the bay, by the same reason as well as the bay into the ocean, as the greatest reservoir, and lowest of all. And moreover, I say, that the surface of the sea becomes lower in the same proportion; because, if it was not the case, the tide would soon rise on the land, which is every day depressed by the rains. This depression has been noticed in the Mediterranean sea, opposite to Montpellier, where the Romans had built a stone wharf, which yet exists, and by which one sees plainly that the surface of the sea has been lowered. This is chiefly evidenced by an immense bed of oyster shells, existing about a mile distant from the town of Montagnac, 8 leagues from Montpellier, and about 7 miles from the said sea, and now about 200 feet lower than the said stratum of oyster shells.

The preceding disposition of the structure of the earth, would appear to have some analogy with the organization of the animal system; for the heart propels the fluids into the arteries, ramification, &c. &c. in order to maintain and support the solids, and when those useful functions are fulfilled, the fluids return, by another channel, which are the veins, into the heart as the reservoir. And so it happens with the grand earthly system. The sea, which I shall call the heart of the earth, compels the evaporation, forming clouds, by the agency of the winds, to convey them on the surface of the globe, in order to feed and maintain the vegetable kingdom—vivifying thereby, all beings living on its surface, and when those great offices are performed, they return by the streams, which are the veins of the earth, into the ocean. By these means the waters of the ocean, like the blood, are in continual motion, and their putrefaction are in part prevented thereby.

Descending from the Plane.

We now descend 240 feet in the distance of $1\frac{1}{2}$ miles, by various steps or grades—having the turnpike road at no more than 5 or 600 feet from us, and we followed it, always in sight, nearly in a parallel line, for the above distance. Arrived at the foot of the plane, where the man, weighing on the breaker, left the ears. We then descended towards Monocoy river, 11 miles distant, by various grades, but none exceeding 37 feet per mile, except in two instances where the descent is 52 feet per mile, and we followed the valley of Bush Creek nearly as far as its mouth, which is into Monocoy river between the viaduct of this road, on that river and the bridge on the turnpike of Frederick to Washington city.

On this side of the ridge, the prospect changes, on account of the view being no more intercepted by woodlands. Of course it becomes more interesting and owing to the greater inclination of the surface of the road, than the other side of the ridge, we went at the rate of 10 miles an hour. Two miles further, met a train of cars, loaded principally with flour, and having but one track on the road, we were obliged to retrograde for some distance, until we arrived at a turn-out—a circumstance far from being pleasing, but this will not happen when the road shall have two tracks.

Reached the bed of Bush Creek, over which we passed by means of a stone viaduct. From this spot, the rail road recedes from the turnpike, until it reaches the Monocoeey; at which place they are $2\frac{1}{2}$ miles apart—but the rail road approaches it gradually, until it again joins it in Patrick street, Frederick city.

Now several grist and other mills are seen at no great distance from one another, and causes a diversity in the prospect. Here the valley is wider than the one below the forks of Patapsco. This circumstance has given more latitude, than in the former valleys, to the engineers of this road. On this account its course is here straighter, and the curves are so well formed, that the eye of the traveller is thereby delighted. Passed by a slate (shistus) quarry, and soon after changed horses, on the very border of the said creek, and on account of the country having as we approached Monocoeey, higher features, several rocky spurs are met which have been depressed, and form as many steep cuts, which enhances the beauty of the scenery.*

Met at last the river Monocoeey, and passed it over a handsome wooden viaduct erected on stone peers, and in sight of the Washington turnpike road bridge. The viaduct is 350 feet long and 37 feet above water mark. The stream is here 296 feet above tide water, and 30 feet higher than the water in the Potomac, at the Point of Rocks. On the other side of the viaduct, we rode over a high embankment of about 300 feet long, at the end of which we reached the fork of this road. The right goes to Frederick—the left to the Point of Rocks, eleven miles from this spot, and passes over one of the most fertile lime stone valleys in the United States. It is nearly on a level, and in sight of handsome mountain scenery. This road is intersected first by Balingers, and after by Tuscarora creeks.

We pursued our journey on the right fork, which is called the lateral road, $3\frac{1}{2}$ miles distant from Frederick over a fertile

*This broken country near the river, is so formed in consequence of the water of the creek, having more strength near its mouth on this river, than at its head, on account of its greater bulk; of course, it runs at this place with a greater degree of violence than at its head, in times of freshes. However, should the ground be of a spongy nature, as it happens to be in lime stone valleys, the surface would not be broken near the mouth of creeks, as it is here with this rocky soil, because the rains, by themselves, have power enough without the help of creeks, to depress the surface—of course it is always lower in such valleys than in the rocky ones; and if they are generally flat, it is because they are depressed without much resistance in any part thereof.

lime stone soil, in sight of the majestic scenery of the Blue Ridge.

We ascended from the forks for a distance of $1\frac{1}{4}$ miles, at the rate of 30 feet per mile, and descended the remainder of the distance, at the rate of 18 feet per mile; in the pleasing sight of steeples and numerous fine buildings.

Arrived safe at half past 5 o'clock, at the depot, within the limits of Frederick city, on the borders of Carroll's creek, after having travelled 8 hours, extremely well satisfied with the journey, being the most convenient and agreeable mode of travelling.

It is well to observe, that they are now filling up the space from this depot to Patriek street, in Frederick—a distance of about 500 feet, and when finished, will cause the road to be so far completed.

Here we stand, 61 miles from the depot in Baltimore, near the basin, and 45 miles by the rail road.

Rate of Tolls and Fare on this Road.

The toll from Baltimore westerly, which is called going, is \$3.60 per ton, the charge of weighing not included. From the west to Baltimroe, which is called returning, \$2.40 per ton, charge of weighing as above, not included. Flour in barrels, from Frederick to Baltimore is $26\frac{1}{2}$ cts. each, all charge of delivery, &c. included.

Passengers' fare, going and coming 3 cts. per mile, being \$1.80 from Baltimore to Frederick, baggage according to weight.

Time of the Departure of the Cars.

Passengers' cars from Baltimore, start now at half past 5, A. M. Stop at Ellicotts' Mills for breakfast—arrive at Frederick about one o'clock, P. M.

The mail car carrying passengers, start from Baltimore at 5, P. M. arrives at Frederick at 1 o'clock in the morning.

From Frederick, the passengers' cars start at 9 o'clock, A. M. Stop at Ellicotts' Mills for dinner at 3 o'clock—arrive about 5 o'clock, P. M.

The mail car starts at 8 o'clock, P. M. arrives in Baltimore at 4 o'clock in the morning. The stages from the west takes the passengers at the depot, convey them to Mr. Thomas's Hotel, in Patrick street, where they dine and start immediately after.

Horse Loads.

A single horse draws 3 cars, loaded with 25 barrels of flour each, being 5400 pounds for each car, or 16,200 for his load, above 8 tons—equal to the draught of 12 horses on a turnpike. Cars weight not included which is 5400 pounds more. These burden cars are going at the rate of 3 miles an hour, in ascending and between 4 and 5 descending. Arrangements are making to place on the road, a sufficient number of locomotive steam engines, which will supercede the horse power now in use, being more economical, and admitting greater speed. Produce and merchandize will be conveyed at the rate of 7 or 8 miles an hour, and passengers and the mail from 12 to 15 miles per hour. Steam engines will also be erected on the inclined planes.

Cost of the Rail Road.

From Pratt street to Ellicotts' Mills, the expense of the road was \$60,000 a mile on an average—from thence to the Point of Rocks, 34 miles further, \$20,000 per mile, making \$1,400,000 in the whole—but when completed \$2,100,000. The lateral road to Frederick cost about \$65,000, or \$22,000 a mile, less than the cost of a canal on the same ground and distance.

Benefit of the Rail Road.

The advantages derived by the inhabitants of Frederick city, and its neighborhood even by Washington county, in the same state, although further west, from the rail road, are manifest. The tenements in that city, which were before unoccupied, have found tenants, and strangers daily arrive there from all quarters. Indeed of late, several stores have been opened in that place, chiefly by strangers—which, but for the rail road would not have been the case. But the real benefits obtained by

Frederick county as well as the one adjoining, consist in having their produce conveyed to the Baltimore market, at a cheap rate, (26 cts. per barrel) and receiving therefrom, with the same advantages, the heavy articles of consumption, as well as those for the melioration of the soil, which advances the price of product, and of the land on which it is raised.

Estimate of the net revenue of the road, and the number of passengers annually:

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| An account was taken of the travellers passing on this road during the space of 12 months, it amounted to | 41,022 |
| In the same space of time the tonnage | 41,086 |
| From the 1st of April to the 1st of October, the receipts were for those six months | \$91,002 |
| Expenses when animal power was used | 38,286 |
| Net | 52,716 |
| Expense of the animal power in 24 hours, was | 33 |
| Do with engine power | 16 |
| Saving daily Or upwards of \$500 per month. | \$17 |
| By the late calculations of Mr. W. Woodville, superintendent of the road, it is ascertained that the next annual net and permanent revenue, will be owing to the saving by the locomotive engine. | \$182,00 |

FREDERICK CITY.

Frederick City is the county town of Frederick county; it is situate on the turnpike, from Baltimore to the western country, 45 miles from the latter city, by the turnpike road, at the end of the lateral rail road, and in the handsome valley of Monocacy, accounted one of the most fertile in the union. Carroll creek, a never failing stream, flows through the centre of this city, and is of an infinite service to its inhabitants for giving power to the machinery of a merchant mill, and furnishing power to several tanneries and other leather factories, all within the precincts of Frederick. It contains a handsome court house, located in the central part of the city, surrounded by both public and private stately buildings; also a jail, situate in the suburbs of this place. Here are also three banks, and a savings institution; one of them is a Branch of the Annapolis bank,

called Fredericktown Branch Bank, the other Frederick County Bank, and the last Farmers' and Mechanics' Bank. Two colleges, for classical education, are found in this city; one called Frederick City College, located near the court house; the professors of which are appointed by trustees, and the other is kept in a handsome building, lately erected, and under the direction of the Rev. John M'Elroy, a Catholic clergyman, rector of the Frederick City Catholic parish, whose usefulness has already been tested by all classes of society in that city. He receives pupils on the most accommodating terms. There is also another seminary of learning, where a complete classical education is received under the care of Mr. Woodbridge, professor of languages and mathematics. This seminary is kept in a handsome house, well situated for health, about $1\frac{1}{2}$ miles west from Frederick. Several respectable seminaries are also kept in that city for the education of young ladies, as well as a Catholic free school, where all the religious sects are admitted. It is kept by respectable ladies, under the name of Sisters of Charity.

Frederick is well stocked with all kinds of stores, some dry and fancy goods, and others with groceries. A large market house stands in the main street, called Market street, and about 20 houses of public entertainment are found in this place; but the most noted, called the City Hotel, is kept by Mr. Thomas, from whence nearly all the stages depart. It is situated in the centre of this city, in Patrick street.

Handsome houses of worship have been erected by several religious societies in this place; one of them by the Catholics, another by the Episcopalians, one by the German Lutherans, as well as another by the German Reformed Presbyterians, another by the Baptists, one by the Methodists, and of late, one by the English Presbyterians.

The corporation has been at the expense of conveying in pipes through the city, the most salubrious waters of the best springs in the mountains, one mile distance from this city; and have, last spring, placed lamps of the most approved plan in the streets; and should the improvements in private buildings, keep pace with the increase of population, which is now about 5000, this place bids fair to acquire a rank of pre-eminence among the other inland cities of the union.

A line of stages start daily for Washington City, 43 miles; another for Winchester, 50 miles, on the route to Staunton and the Hot and other Springs, in Virginia; another for Wheeling, 220 miles, on the road to Cincinnati, Ohio, at the reduced price of \$14; another for Pittsburg, by Hagerstown, Greencastle, and Mercersburg, and another for York, on the road to Philadelphia.

Several cars depart daily, at 9 A. M. for Baltimore, as well as a mail car for the same place at 8 o'clock, P. M.

POINT OF ROCKS OR POINT JOHNSON.

This place is situate at the junction of the Baltimore and Ohio rail road, and the Chesapeake and Ohio canal, under the name of Point Johnson, and at the foot of Cotoctin mountain. It consists of a few houses and taverns, hastily put up, since the structure of the rail road. This place or town, on account of being surrounded by a country abounding with all the necessities of life, owing to the fertility of the soil, and being one of the depots of the rail road company, promises to become a place of importance, especially if the rail road from Winchester, to Harper's Ferry, is permanently established.

A car starts daily for Baltimore, and another arrives from the same city, as well as from Frederick. It is 71 miles from the depot, in Pratt street, in Baltimore, and 40 from Washington City, by the canal; and as soon as the aqueduct bridge, on the Monocacy, shall be perfected, a boat will ply for Washington daily, which will form one of the most agreeable communications between Baltimore and this place, part by water and part by the rail road, viz. part by the steam-boats plying from Baltimore, to Washington, and there by taking the canal boat to this place. Then returning by the rail road.

A line of boats has commenced running from this place, to Harper's Ferry, 12 miles distance, which is of infinite service to those who travel towards the great Valley of Virginia, in which Winchester and Staunton stands.

DIRECTORY.

Having in the preceding part of this work given all necessary information to the stranger visiting Baltimore, for the

gratification of his curiosity, the author deems it important also to add a Directory, for the purpose of informing the mercantile portion of our visitants, and even some of our own citizens, where they may be supplied with articles either of European manufacture or the produce of domestic industry in every branch, conducted by our enterprising artizans. The name, residence, and profession, of many of our importing and commission merchants, and manufacturers of various kinds, with some professors of the fine arts, is therefore given; and the author cannot but acknowledge his gratitude to those who have favoured him with their subscriptions to the work, and especially to those who, by furnishing advertisements, have made the public indebted to them for having thus facilitated the means of forwarding this useful undertaking.

Shipping Merchants.

Adair, Wm. & Thomas, No. 175, Baltimore street, keep ships in the trade between Liverpool, Belfast, and Baltimore; importers of British, Scotch, and Irish dry goods; also general commission merchants.

Folingsby, A. G., No. 11, Smith's wharf, keeps vessels for the European trade, &c.

Karthaus, Kurtz & Co., No. 45, South Gay street, keep vessels for the European trade, &c.

The Society has among its members an artist that specializes in locomotive and railway scenes. Although located in France, Mr. E. Andre Schefer is thoroughly capable of doing American type of locomotives and trains. Specimens of his work, in watercolor, have been submitted and all who have examined same have pronounced his work first class in every respect. Mr. Schefer works from photographs of our locomotives and equipment. Any of our members who would care to have him make a watercolor scene or a sketch are urged to get in touch with him as his prices are very reasonable. He may be addressed care of Hotel Chuche, St. Malo, France.

An Early List of Locomotives.

On June 29th, 1838, the House of Representatives adopted a resolution that required the Secretary of the Treasury to collect and report to Congress all the information that can be obtained as to the use of steam engines in the United States. This report contains the whole number of steam engines, when and by whom they were constructed and through the kindness of Mr. C. L. Winey, the fortunate owner of a copy of this report, the Society is enabled to reproduce this list.

It may be of interest to note that the whole number of steam engines of every kind in the United States at this time was ascertained and estimated to be 3010. Of this whole number, about 800 are supposed to be employed in steamboats, of which 700 are ascertained and 100 estimated. About 350 are employed in locomotives on railroads. Of these 337 are ascertained and 13 estimated. The residue, about 1860, are used in manufactories of various kinds.

Of the names of locomotive builders that follow, it may not be out of place to give a list showing their location as doubtless some are new to our members:

- Robert Stephenson, Newcastle, England. ✓
- A. L. Stevenson, Newcastle-upon-Tyne, England. ✓
- Edward Bury, Liverpool, England. ✓
- Locks & Canal Co., Lowell, Mass. ✓
- M. W. Baldwin, Philadelphia, Pa. ✓
- Newcastle Manufacturing Co., Newcastle, Delaware. ✓
- William H. Norris, Philadelphia, Pa. ✓
- R. M. Bouton, Mill-dam Foundry, Boston, Mass. ✓
- Robert Stephenson, Manchester, England. ✓
- H. R. Denham & Co., New York, N. Y. ✓
- Dunbar & Co., New York, N. Y. ✓
- Rogers, Ketchum & Grosvenor, Paterson, N. J. ✓
- Browning, Dunham & Co., New York, N. Y. ✓
- Swartwout, England. ✓
- Robert L. Stevens, Bordentown, N. J. ✓
- C. Tayleur & Co., Warrington, England. ✓
- Seth Boyden, Newark, N. J. ✓
- Gillingham, Baltimore, Md. ✓

West Point Co., New York, N. Y. ✓
Wm. Norris, Philadelphia, Pa. ✓✓
Braithwait, London, England. ✓
Sellers & Sons, Philadelphia, Pa. ✓
Garret & Eastwick, Philadelphia, Pa. ✓
Rush & Muhlenburg, Philadelphia, Pa. ✓
Bolton & Co., Boston, Mass. ✓
McClung, Wade & Co., Pittsburgh, Pa. ✓
E. A. Young, Newcastle, England. ✓ *Delaware*
Long & Norris, Philadelphia, Pa. ✓
Newcastle Shops, Newcastle & Frenchtown R. R. Shops. ✓
Phineas Davis, Baltimore, Md. ✓
Gillingham & Winans, Baltimore, Md. ✓
Rothwell & Hich, Bolton, England. ✓
D. J. Burr & Co., Richmond, Va. ✓
B. Hich, Bolton, England. ✓
Thos. W. Smith & Co., Alexandria, Va. ✓
Summer, Graves & Day, Southampton, England. ✓
Rothwell, Newcastle, England. ✓
Eason & Dotterer, Charleston, S. C. ✓
McLeish & Smith, Charleston, S. C. ✓

LISTS OF LOCOMOTIVES ON THE RAILROADS OF THE UNITED STATES,
1838.

From "Letter from the Secretary of the Treasury in Relation
to Steam Engines."

Bangor & Piscataqua R. R.,

"Pioneer", 20 h.p., Rob't Stephenson, 1836 ✓
#6, 20 h.p., Rob't Stephenson, 1836 ✓

Boston & Providence R. R.,

"Whistler", 30 h.p., A. L. Stevenson, 1833 ✓
"Boston", 30 h.p., Edward Bury, 1835 ✓
"New York", 30 h.p., George Forester, 1835 ✓
"Lowell", 30 h.p., Locks & Canal Co., 1835 ✓
"Providence", 30 h.p., Locks & Canal Co., 1835 ✓
"Baldwin #1", 30 h.p., M. W. Baldwin, 1836 ✓
"Baldwin #2", 30 h.p., M. W. Baldwin, 1836 ✓
"Baldwin #3", 30 h.p., M. W. Baldwin, 1836 ✓

"Young #1", 30 h.p., Newcastle Mfg. Co., 1836 ✓
"Young #2", 30 h.p., Newcastle Mfg. Co., 1836 ✓
"Philadelphia", 20 h.p., Wm. H. Norris, 1835 ✓

Boston & Worcester R. R.,

"Yankee", 30 h.p., Mill-dam Foundry, 1834 ✓
"Lowell", 30 h.p., Locks & Canal Co., 1836 ✓
"Lion", 30 h.p., Edward Bury, 1836 ✓
"Wm. Penn", 30 h.p., M. W. Baldwin, 1836 ✓
"Elephant", 30 h.p., M. W. Baldwin, 1837 ✓
"Meteor", 30 h.p., Rob't Stephenson, 1834 ✓
"Comet", 30 h.p., Rob't Stephenson, 1835 ✓
"Rocket", 30 h.p., Rob't Stephenson, 1835 ✓
"Mercury", 30 h.p., Rob't Stephenson, 1835 ✓
"Jupiter", 30 h.p., Rob't Stephenson, 1835 ✓

Boston & Lowell R. R.,

"Stevenson", 30 h.p., Rob't Stephenson, 1832 ✓
"Patrick", 30 h.p., Locks & Canal Co., 1835 ✓
"Lowell", 30 h.p., Locks & Canal Co., 1835 ✓
"Boston", 30 h.p., Locks & Canal Co., 1835 ✓
"Merrimac", 30 h.p., Locks & Canal Co., 1836 ✓
"Concord", 30 h.p., Locks & Canal Co., 1836 ✓
"Nashua", 30 h.p., Locks & Canal Co., 1836 ✓

Eastern Railroad,

"Suffolk", 40 h.p., Locks & Canal Co., 1838 ✓
"Essex", 40 h.p., Locks & Canal Co., 1838 ✓
"Merrimack", 40 h.p., Locks & Canal Co., 1838 ✓
"Rockingham", 40 h.p., Locks & Canal Co., 1838 ✓

Andover & Haverhill R. R.,

"Andover", 30 h.p., Locks & Canal Co., 1836 ✓
"Haverhill", 30 h.p., Locks & Canal Co., 1836 ✓
"Rockingham", 30 h.p., Locks & Canal Co., 1837 ✓

Taunton Branch R. R.,

"Taunton", 30 h.p., Locks & Canal Co., 1836 ✓
"New Bedford", 30 h.p., Locks & Canal Co., 1837 ✓

N. Y., Providence & Boston R. R.,

"Stonington", Locks & Canal Co., 1836, Cyl. 12x18",
Drivers 54", Wt. 10 tons.

"Rhode Island", Locks & Canal Co., 1836, Same as ✓
 "Stonington"
"Apponaug", Locks & Canal Co., 1836, Cyl. 11x16", Driv- ✓
 ers 60', Wt. 8½ tons
"Greenwich", Locks & Canal Co., 1836, Same as "Appo- ✓
 naug"
"Little Rest", Locks & Canal Co., 1836, Same as "Appo- ✓
 naug"
"Pawcatuck", Locks & Canal Co., 1836, Same as "Appo- ✓
 naug"

Utica & Schenectady R. R.,

Nos. 1 to 12, M. W. Baldwin, 1835-36, Wt. 9½ tons, 8 h.p. ✓

Saratoga & Schenectady R. R.,

"Fire Fly", 12 h.p., Rob't Stephenson, 1832 ✓

"Davy Crockett", 12 h.p., Rob't Stephenson, 1833 ✓

Long Island R. R.,

"Hicksville", Locks & Canal Co., 1836 ✓✓

"Post Boy", M. W. Baldwin, 1836 ✓✓

"Ariel", M. W. Baldwin, 1836 ✓✓

New York & Harlem R. R.,

"New York", 20 h.p., H. R. Denham & Co., 1837 ✓

"Harlaem", 20 h.p., H. R. Denham & Co., 1837 ✓

"Yorkville", 20 h.p., H. R. Denham & Co., 1838 ✓

"Manhattanville", 20 h.p., H. R. Denham & Co., 1838 ✓

Buffalo & Niagara Falls R. R.,

"Buffalo", 30 h.p., Locks & Canal Co., 1835 ✓

"Niagra", 30 h.p., Dunbar & Co., 1836 ✓

"Tonawanda", 25 h.p., M. W. Baldwin, 1838 ✓

Lockport & Niagra Falls R. R.,

"Clinton", 20 h.p., Rogers K. & G., 1838 ✓

"Downing", 15 h.p., Browning, Dunham & Co., 1837 ✓

Tonawanda R. R.,

#1, 30 h.p., M. W. Baldwin, 1836 ✓

#2, 30 h.p., M. W. Baldwin, 1836 ✓

Camden & Amboy R. R.,

#1, 22 h.p., Swartwout, 1832 ✓

#2, 3, 22 h.p., Robert L. Stevens, 1833 ✓
 #4, 5, 6, 7, 22 h.p., Robert L. Stevens, 1834 ✓
 #8, 22 h.p., Robert L. Stevens, 1835 ✓
 #9, 10, 30 h.p., Robert L. Stevens, 1835 ✓
 #11, 22 h.p., Robert L. Stevens, 1835 ✓
 #12, 13, 22 h.p., Robert L. Stevens, 1836 ✓
 #14, 22 h.p., Robert L. Stevens, 1837 ✓
 #15, 16, 30 h.p., Robert L. Stevens, 1837 ✓

Camden & Woodbury R. R.

“Fire Fly”, 12 h.p., C. Tayleur & Co., 1833 ✓
 “Red Clover”, 12 h.p., C. Tayleur & Co., 1833 ✓

Morris & Essex R. R.

“Orange”, 20 h.p., Seth Boyden, 1837 ✓
 “Essex”, 20 h.p., Seth Boyden, 1838 ✓
 “Speedwell”, 20 h.p., M. W. Baldwin, 1838 ✓

New Jersey R. R.

“Newark”, 20 h.p., M. W. Baldwin, 1835 ✓
 “New Jersey”, 20 h.p., M. W. Baldwin, 1836 ✓
 “New Brunswick”, 20 h.p., M. W. Baldwin, 1836 ✓
 “Elizabeth”, 20 h.p., M. W. Baldwin, 1837 ✓
 “Rahway”, 20 h.p., M. W. Baldwin, 1837 ✓
 “New York”, 20 h.p., H. B. Dunham & Co., 1837 ✓
 “Arresseoh”, 25 h.p., Rogers K & G, 1837 ✓

Paterson & Hudson R. R.

“McNeil”, 6 h.p., In England, 1833 ✓
 “Whistler”, 8 h.p., Locks & Canal Co., 1835 ✓
 “Baltimore”, 10 h.p., Gillingham, 1836 ✓
 “New York”, 11 h.p., Gillingham, 1836 ✓

Philadelphia, Norristown & Germantown R. R.

“Ironsides”, 10 h.p., M. W. Baldwin, 1832 ✓
 “Sampson”, 12 h.p., Newcastle Co., 1832 ✓
 “Velocity”, 12 h.p., West Point Co., 1834 ✓
 “Star”, 8 h.p., Wm. Norris, 1834 ✓
 “Eagle”, 20 h.p., M. W. Baldwin, 1835 ✓
 “Arrow”, 10 h.p., Newcastle Co., 1835 ✓
 “Arabian”, 20 h.p., M. W. Baldwin, 1836 ✓
 “Reindeer”, 20 h.p., M. W. Baldwin, 1837 ✓

Philadelphia & Reading R. R.,

- "Neversink", 25 h.p., M. W. Baldwin, 1837 ✓
- "Rockett", 25 h.p., Braithwait, 1837 ✓
- "Fire Fly", 25 h.p., Braithwait, 1837 ✓
- "Spitfire", 25 h.p., Braithwait, 1837 ✓
- "Dragon", 25 h.p., Braithwait, 1837 ✓

Philadelphia & Trenton R. R.,

- "Pennsylvania", 14 h.p., M. W. Baldwin, 1835 ✓
- "New Jersey", 14 h.p., M. W. Baldwin, 1835 ✓
- "Trenton", 16 h.p., M. W. Baldwin, 1835 ✓
- "Black Hawk", 16 h.p., M. W. Baldwin, 1835 ✓

Philadelphia & Wilmington R. R.,

- "Wilmington", 25 h.p., Edward Barry, 1836 ✓
- "Maryland", 25 h.p., M. W. Baldwin, 1836 ✓
- "Delaware", 25 h.p., M. W. Baldwin, 1836 ✓
- "Brandywine", 25 h.p., M. W. Baldwin, 1837 ✓
- "Gen. Washington", 25 h.p., Wm. Norris, 1837 ✓
- "Newcastle", 25 h.p., Newcastle Co., 1838 ✓
- "Christiana", 25 h.p., M. W. Baldwin, 1838 ✓

Philadelphia & Columbia R. R.,

- "Lancaster", 25 h.p., M. W. Baldwin, 1834 ✓
- "Columbia", 25 h.p., M. W. Baldwin, 1834 ✓
- "Philadelphia", 25 h.p., M. W. Baldwin, 1834 ✓
- "Pennsylvania", 25 h.p., M. W. Baldwin, 1834 ✓
- "Delaware", 25 h.p., M. W. Baldwin, 1834 ✓
- "Susquehanna", 25 h.p., M. W. Baldwin, 1834 ✓
- "Schuylkill", 25 h.p., M. W. Baldwin, 1834 ✓
- "Kentucky", 25 h.p., Rob't Stephenson, 1835 ✓
- "John Bull", 20 h.p., Rob't Stephenson, 1835 ✓
- "Atlantic", 20 h.p., Rob't Stephenson, 1835 ✓
- "Albion", 20 h.p., M. W. Baldwin, 1834 ✓
- "Juniatta", 25 h.p., M. W. Baldwin, 1834 ✓
- "Brandywine", 25 h.p., M. W. Baldwin, 1834 ✓
- "America", 25 h.p., M. W. Baldwin, 1835 ✓
- "Sampson", 25 h.p., Sellers & Sons, 1835 ✓
- "Planet", 30 h.p., Sellers & Sons, 1835 ✓
- "Columbus", 30 h.p., Newcastle Co., 1835 ✓
- "West Chester", 25 h.p., Wm. Norris, 1836 ✓
- "Conestoga", 25 h.p., M. W. Baldwin, 1836 ✓

"Virginia", 25 h.p., M. W. Baldwin, 1836 ✓
"Wash'n co. Farmer", 25 h.p., Newcastle Co., 1836 ✓
"Paoli", 25 h.p., M. W. Baldwin, 1836 ✓
"E. F. Gay", 25 h.p., M. W. Baldwin, 1836 ✓
"Parksburg", 25 h.p., M. W. Baldwin, 1836 ✓
"Octorara", 25 h.p., M. W. Baldwin, 1836 ✓
"Downingtown", 25 h.p., M. W. Baldwin, 1837 ✓
"Piqua", 25 h.p., M. W. Baldwin, 1837 ✓
"Telegraph", 25 h.p., Garrett & Eastwick, 1837 ✓
"Indiana", 25 h.p., M. W. Baldwin, 1837 ✓
"Mississippi", 25 h.p., M. W. Baldwin, 1837 ✓
"Montgomery", 25 h.p., M. W. Baldwin, 1837 ✓
"Wisconsin", 25 h.p., M. W. Baldwin, 1837 ✓
"Enterprise", 25 h.p., Garrett & Eastwick, 1837 ✓
"Bald Eagle", 25 h.p., Garrett & Eastwick, 1836 ✓

Stationary Engine on

Philadelphia plane, 30 h.p., Rush & Muhlenberg, 1834 ✓
Columbia plane, 30 h.p., Rush & Muhlenberg, 1834 ✓

Stationary Engine at

Parkersburg shop, 15 h.p., M. W. Baldwin, 1835 ✓

Harrisburg, Portsmouth, Mt. Joy & Lancaster R. R.,
"Middletown", 18 h.p., M. W. Baldwin, 1836 ✓
"Mt. Joy", 18 h.p., M. W. Baldwin, 1836 ✓
"Flying Dutchman", 18 h.p., M. W. Baldwin, 1836 ✓
"Harrisburg", 18 h.p., M. W. Baldwin, 1837 ✓
"C. B. Penrose", 18 h.p., M. W. Baldwin, 1837 ✓
"Conewago", 18 h.p., M. W. Baldwin, 1837 ✓
"Henry Clay", 18 h.p., Wm. Norris, 1838 ✓

Cumberland Valley R. R. (from Harrisburg to Chambersburg),

"Cumberland Valley", 24 h.p., Wm. Norris, 1837 ✓
"Carlisle", 24 h.p., Wm. Norris, 1837 ✓
"Chambersburg", 24 h.p., M. W. Baldwin, 1837 ✓
"Shippensburg", 24 h.p., Wm. Norris, 1838 ✓
"Nicholas Biddle", 24 h.p., Wm. Norris, 1838 ✓

Danville & Pottsville R. R.,

"North Star", 18 h.p., Garrett & Eastwick, 1838 ✓

Williamsport & Elmira R. R.,

"Robert Ralston", 18 h.p., Wm. Norris, 1838 ✓

Hazelton Coal Co.,

"Lehigh", 18 h.p., Garrett & Eastwick, 1838 ✓

"Hazelton", 26 h.p., Garrett & Eastwick, 1838 ✓

Beaver Meadow R. R.,

"Beaver", 26 h.p., Garrett & Eastwick, 1837 ✓

"S. D. Ingham", 18 h.p., Garrett & Eastwick, 1836 ✓

"Elias Eley", 18 h.p., Garrett & Eastwick, 1836 ✓

"Quakake", 18 h.p., Garrett & Eastwick, 1836 ✓

"Nonpareil", 26 h.p., Garrett & Eastwick, 1838 ✓

Allegheny Portage R. R. (from Holidaysburg to Johnstown),

"Boston", 15 h.p., Bolton & Co., 1832 ✓

"Mountaineer", 15 h.p., McClung, Wade & Co., 1834 ✓

"Delaware", 15 h.p., E. A. Young & Co., 1833 ✓

"Alleghany", 17 h.p., E. A. Young & Co., 1834 ✓

"Pittsburg", 15 h.p., McClung, Wade & Co., 1834 ✓

"Backwoodsman", 17 h.p., McClung, Wade & Co., 1836 ✓

"Conemaugh", 17 h.p., McClung, Wade & Co., 1836 ✓

"Benj. Franklin", 15 h.p., Long & Norris, 1835 ✓

"Robert Morris", 15 h.p., Wm. Norris, 1836 ✓

"Geo. Washington", 20 h.p., Wm. Norris, 1836 ✓

"James Madison", 20 h.p., Wm. Norris, 1836 ✓

"Bush Hill", 25 h.p., Wm. Norris, 1837 ✓

"Independence", 25 h.p., Wm. Norris, 1837 ✓

"Constitution", 25 h.p., Wm. Norris, 1837 ✓

"United States", 25 h.p., Wm. Norris, 1837 ✓

"Lafayette", 20 h.p., Wm. Norris, 1837 ✓

"Comet", 15 h.p., E. A. Young, 1837 ✓

Newcastle & Frenchtown Turnpike & R. R. Co.,

"Delaware", 38 h.p., Rob't Stephenson, 1831 ✓

"Pennsylvania", 40 h.p., Rob't Stephenson, 1832 ✓

"Virginia", 40 h.p., Rob't Stephenson, 1833 ✓

"Phoenix", 38 h.p., Rob't Stephenson, 1832 ✓

"Newcastle", 40 h.p., Newcastle Shops, 1834 ✓

"Comet", 38 h.p., Newcastle Shops, 1835 ✓

Philadelphia, Wilmington & Baltimore R. R.,

"Susquehanna", 25 h.p., Locks & Canal Co., 1836 ✓

"Wilmington", 25 h.p., Edward Bury, 1837 ✓
 "Maryland", 25 h.p., M. W. Baldwin, 1836 ✓
 "Delaware", 25 h.p., M. W. Baldwin, 1836 ✓
 "Brandywine", 25 h.p., M. W. Baldwin, 1837 ✓
 "Christiana", 25 h.p., M. W. Baldwin, 1838 ✓
 "Gen'l Washington", 25 h.p., Wm. Norris, 1837 ✓
 "Newcastle", 25 h.p., Newcastle Mfg. Co., 1838 ✓
 "Mathew Newkirk", 20 h.p., Wm. Norris, 1837 ✓
 "Nicholas Biddle", 20 h.p., Wm. Norris, 1837 ✓
 "Lady Washington", 20 h.p., Wm. Norris, 1837 ✓
 "Napoleon", 20 h.p., Wm. Norris, 1837 ✓
 "Baltimore", 20 h.p., Wm. Norris, 1837 ✓
 "Lewis Brantz", 20 h.p., Wm. Norris, 1837 ✓

Baltimore & Ohio R. R.,

"Arabia", 12 h.p., Phineas Davis, 1834 ✓
 "Geo. Washington", 12 h.p., Phineas Davis, 1834 ✓
 "John Adams", 12 h.p., Phineas Davis, 1835 ✓
 "Thomas Jefferson", 12 h.p., Phineas Davis, 1835 ✓
 "James Madison", 12 h.p., Phineas Davis, 1835 ✓
 "James Monroe", 12 h.p., Phineas Davis, 1835 ✓
 "John Q. Adams", 15 h.p., Gillingham & Winans, 1836 ✓
 "Andrew Jackson", 15 h.p., Gillingham & Winans, 1836 ✓
 "John Hancock", 15 h.p., Gillingham & Winans, 1836 ✓
 "Phineas Davis", 15 h.p., Gillingham & Winans, 1836 ✓
 "George Clinton", 15 h.p., Gillingham & Winans, 1836 ✓
 "Martin Van Buren", 15 h.p., Gillingham & Winans, 1836 ✓
 "Benjamin Franklin", 15 h.p., Gillingham & Winans, 1837 ✓
 "William Patterson", 15 h.p., Gillingham & Winans, 1837 ✓
 "Lafayette", 15 h.p., Wm. Norris, 1837 ✓
 "J W Patterson", 15 h.p., Wm. Norris, 1837 ✓
 "Philip E. Thomas", 15 h.p., Wm. Norris, 1837 ✓
 "Isaac McKim", 15 h.p., Gillingham & Winans, 1838 ✓

Baltimore & Susquehanna R. R.,

"Maryland", 20 h.p., Locks & Canal Co., 1837 ✓
 "Baltimore", 20 h.p., Locks & Canal Co., 1837 ✓
 "Susquehanna", 20 h.p., Locks & Canal Co., 1837 ✓
 "Howard", 20 h.p., Locks & Canal Co., 1837 ✓
 "Herald", 15 h.p., Rob't Stephenson, 1832 ✓

#151, 20 h.p., Rob't Stephenson, 1837 ✓
#152, 20 h.p., Rob't Stephenson, 1837 ✓

Portsmouth & Roanoke R. R.,

#1, 14 h.p., Robert L. Stevens, 1834 ✓✓
#2, 14 h.p., Robert L. Stevens, 1834 ✓✓
#3, 14 h.p., Edward Bury, 1835 ✓✓
#4, 14 h.p., Robert L. Stevens, 1836 ✓✓
#5, 14 h.p., Robert L. Stevens, 1836 ✓✓
#6, 14 h.p., Wm. Norris, 1838 ✓

Greenville & Roanoke R. R.,

"Nottoway", 15 h.p., Rothwell & Hitch, 1833 ✓

Raleigh & Gaston R. R.,

"Meherrin", 20 h.p., Edward Bury, 1833 ✓
"Appamattox", 20 h.p., Edward Bury, 1833 ✓
"Staunton", 15 h.p., Edward Bury, 1834 ✓
"Petersburg", 15 h.p., Edward Bury, 1834 ✓
"Yadkin", 20 h.p., D. J. Burr & Co., 1836 ✓
"Gaston", 20 h.p., C. Tayleur & Co., 1836 ✓
"Raleigh", 20 h.p., C. Tayleur & Co., 1836 ✓
"Roanoke", 20 h.p., Edward Bury, 1837 ✓
"Virginia", 20 h.p., B. Hitch, 1837 ✓

City Point R. R.,

"Powhatan", 35 h.p., Wm. Norris, 1838 ✓

Richmond & Petersburg R. R.,

"Liverpool", 15 h.p., Edward Bury, 1833 ✓
"John Randolph", 14 h.p., Edward Bury, 1837 ✓
"Sheppard", 14 h.p., Edward Bury, 1837 ✓
"Stafford", 14 h.p., Edward Bury, 1837 ✓
"Patrick Henry", 14 h.p., Edward Bury, 1837 ✓
"Robert Morris", 14 h.p., Rothwell, 1837 ✓
"Oliver Evans", 14 h.p., Rothwell, 1837 ✓

Richmond, Fredericksburg & Potomac R. R.,

"Roanoke", 9 h.p., Edward Bury, 1832 ✓
"Richmond", 14 h.p., Rob't Stephenson, 1834 ✓
"Augusta", 11 h.p., Edward Bury, 1835 ✓
"Fredericksburg", 11 h.p., Edward Bury, 1835 ✓

"American", 15 h.p., Newcastle Mfg. Co., 1836 ✓
 "Potomac", 14 h.p., B. Hick, 1836 ✓
 "Louisa", 14 h.p., B. Hick, 1837 ✓
 "Washington", 14 h.p., Thos. W. Smith & Co., 1837 ✓
 "Jefferson", 14 h.p., Summer, Graves & Day, 1837 ✓
 "Virginia", 14 h.p., William Norris, 1838 ✓

Wilmington & Raleigh R. R.

"Wayne", 14 h.p., Rob't Stephenson, 1837 ✓
 "Nash", 14 h.p., Rob't Stephenson, 1837 ✓
 "Halifax", 14 h.p., D & J Burr & Co., 1838 ✓
 "Sampson", 14 h.p., D & J Burr & Co., 1838 ✓

South Carolina Canal & R. R. Co.

"Native", 8 h.p., Eason & Dotterer, 1833 ✓
 "E. L. Miller", 14 h.p., M. W. Baldwin, 1833 ✓
 "Georgia", 12 h.p., Edward Bury, 1833-4 ✓
 "Augusta", 12 h.p., Edward Bury, 1833-4 ✓
 "Wm. Aiken", 12 h.p., Stephenson & Co., 1834 ✓
 "E. Hony", 14 h.p., Stephenson & Co., 1834 ✓
 "H. Schultz", 14 h.p., Rothwell, 1835 ✓
 "Sumter", 14 h.p., Stephenson & Co., 1835 ✓
 "Marion", 14 h.p., Stephenson & Co., 1835 ✓
 "Ohio", 14 h.p., Stephenson & Co., 1835 ✓
 "Cincinnati", 12 h.p., C. Tayleur, 1835 ✓
 "Allen", 12 h.p., C. Tayleur, 1835 ✓
 "Kentucky", 12 h.p., C. Tayleur, 1835 ✓
 "Washington", 10 h.p., Eason & Dotterer, 1835 ✓
 "Tennessee", 9 h.p., Rothwell, 1836 ✓
 "Lafayette", 12 h.p., Eason & Dotterer, 1836 ✓
 "Philadelphia", 13 h.p., M. W. Baldwin, 1836 ✓
 "Franklin", 10 h.p., Eason & Dotterer, 1836 ✓
 "Alexandria", 10 h.p., T. Smith & Co., 1837 ✓
 "William Penn", 10 h.p., T. Smith & Co., 1837 ✓
 "Moultrie", 10 h.p., Eason & Dotterer, 1837 ✓
 "Vulcan", 10 h.p., McLeish & Smith, 1837 ✓
 "Charleston", 10 h.p., McLeish & Smith, 1837 ✓
 "Edisto", 12 h.p., M. W. Baldwin, 1837 ✓
 "Barnwell", 12 h.p., M. W. Baldwin, 1837 ✓
 "Reading", 10 h.p., Eason & Dotterer, 1838 ✓
 "Branchville", 10 h.p., Eason & Dotterer, 1838 ✓

The Central R. R. & Banking Co. of Georgia,

"Tennessee", M. W. Baldwin, 1837 ✓

"Georgia", M. W. Baldwin, 1837 ✓

"Macon", M. W. Baldwin, 1838 ✓

St. Joseph & Lake Wimmico,

"St. Joseph", 12 h.p., M. W. Baldwin, 1836 ✓

"Wimmico", 12 h.p., M. W. Baldwin, 1837 ✓

Mobile & Cedar Point R. R.,

"Eclipse", 36 h.p., M. W. Baldwin, 1836 ✓

Pontchartrain R. R.,

"Pontchartrain", 24 h.p., Rothwell, Hick & Rothwell,
1832 ✓

"Creole", 20 h.p., Edward Bury, 1833 ✓

"Fulton", 16 h.p., Benj. Hick & Son, 1834 ✓

"Orleans", 16 h.p., Edward Bury, 1836 ✓

Carrolton R. R.,

"Enterprise", 30 h.p., Wm. Norris, 1836 ✓

"Industry", 30 h.p., Wm. Norris, 1836 ✓

"Lafayette", 28 h.p., Wm. Norris, 1836 ✓

"Washington", 28 h.p., Wm. Norris, 1836 ✓

"New Orleans", 34 h.p., Benj. Hick & Co., 1837 ✓

Nashville & New Orleans R. R.,

— 32 h.p., Denham & Co., 1836 ✓

— 38 h.p., Newcastle Mfg. Co., 1836 ✓

Lexington & Ohio R. R.,

"Nottoway", 10 h.p., Built in England, 1836 ✓

"Elkhorn", 10 h.p., Built in England, 1836 ✓

Mad River & Lake Erie R. R.,

"Sandusky", 82 h.p., Rogers, K & G, 1837 ✓

Erie & Kalamazoo R. R.,

"Toledo", 15 h.p., M. W. Baldwin, 1837 ✓

¶ "Adrian", 15 h.p., M. W. Baldwin, 1837 ✓

Central R. R. of the State of Michigan,

"Ironsides", 30 h.p., Denham & Co., 1836 ✓

"Detroit", 30 h.p., M. W. Baldwin, 1837 ✓

"Michigan", 30 h.p., M. W. Baldwin, 1837 ✓

"Pittsburg", 30 h.p., McClung, Wade & Co., 1837 ✓

EDITOR:

Dear Sir:

I have just read with much interest an article by Mr. W. A. Lucas entitled "The First Iron Passenger Cars", commencing on page 31 of Bulletin 4, and in connection with his splendid paper I beg to call your attention to patent No. 10,142, issued to T. E. Warren of Troy, N. Y., October 18, 1853, on an improvement in iron passenger car bodies. I am enclosing a copy of this patent. You will note that this patent issued about five and a half months before the LaMothe patent No. 10,721, April 4, 1854, referred to in Mr. Lucas' article. The Warren patent drawing does not resemble a passenger car to any great extent, but the drawing appearing in the Patent Office Official Gazette shows a passenger car in detail.

It is very interesting to note that a car was actually built under the LaMothe patent in 1859 for the Boston and Worcester Railroad, and it was from Mr. Lucas' article that I first heard of this fact. The truth is, there is so much interesting historical data in this article and in the others, I look forward to reading every article in the five bulletins sent me.

In Bulletin #3 under the heading of "Question Box", page 29, I note that Mr. Harold D. Forsythe, Swamscott, Mass., asks for information in reference to early "container cars", which have become so popular on the New York Central. I think I have made a list of all U. S. patents on the subject, together with a list of all articles published during the past four or five years in standard railroad publications. The first U. S. patent on the subject, as far as I can see, is one issued in 1851, No. 8177, to Lawrence Meyers. This patent is taken out on the use of cylinders for conveying material upon railroads, the cylinders being preventing from falling or rolling by the use of partitions. It is stated that the material in bulk is held in place by centrifugal force while the car is in motion. The inventor disclaims the use of cylinders for the use of conveying material upon common roads, admitting that that had been done before, but judging from what he has to say in his specification he considered himself the first to carry material in containers upon a railroad car.

Yours very truly,

CHARLES L. HOWARD.

400 N. Michigan Ave., Chicago, July 16, 1923.

Some Recollections.

By G. W. BISHOP.

I think I was a born "railwayist", one of those infants who turn to "puff-puffs" in preference to dolls or rattles. What hereditary or psychic influence may account for this I know not. Most boys have an interest in engines, but some more than others.

"Look at the steam!" was one of my first recorded remarks. Then I made the discovery that Great Western engines had brass domes. At that time those engines were dazzling things—brass domes, green boilers, scarlet frames, shining dragons that could scarcely fail to attract an inquisitive infant.

Wonderful attempts I made at sketching them on a slate. An ingenious relative showed me how to make gorgeous clouds of steam: you make a thick mass of slate dust with the pencil on the slate, then with a dry finger-tip take up the dust and spread it lightly above the pictured engine-chimney—a hint to parents.

In spite of the G. W. green-and-gold, the L. N. W. engines with their neat black outlines remained firm favorites with me. For one thing I was brought into contact with them oftener, and could study their little ways. Tunnels were an abiding mystery, especially the North Tunnel at Birmingham. One approaches this under towering buildings, amid clouds of steam, and immediately a steep grade has to be climbed in the darkness. The loud puffing of the engine against the roof, the flying sparks, and the roar and flash of another train running past, all went to make up an atmosphere of romance. On the up line the tunnel had—and still has—a signalling apparatus that made a fearsome clanking noise as a train went over it.

I believe my fond parents used to tell me picturesque fables about "the man putting the candle out" as we entered a tunnel; but I was too much of a "railway child" to need such blandishments.

In those days a winter journey, even a short one, was something of an adventure. Great trucks of iron foot-warmers were lugged along the platforms, and flung into the compart-

ments, if you were lucky. If not, you remained cold, for steam-pipes were unheard of. As darkness fell, more trucks, loaded this time with burning oil-lamps, appeared at the stations, and aerobatic porters clambered to the carriage top, and inserted the lamps in holes in the roof.

The day trip to the sea was a sturdy Victorian institution. For the sum of 5/6 you could get a double journey totalling about 300 miles. A 0-6-0 goods engine and a long string of 6-wheeled coaches were told off for the job, and started somewhere about 3 a. m., working back the following night and early morning. I often wondered, and still wonder, what the engine-men did at the seaside; whether they slept or strolled on the sands. These trips are reappearing, after a war-time slumber, but now we have corridor coaches and huge engines, and they cost us distinctly more than 5/6.

Notes From the Memories of Thomas Bowker and John Matthews, Formerly London & North Western Enginemen...

When the four-track line was made from Crewe to Stafford, four old Bury engines were sold to the contractor. These were similar to the "foot-warmer" engine at New Street, referred to later. Many of the contractor's engines had padded buffers, to avoid injuring the navvies.

There were no dry sand boxes in early days. In climbing the bank from Euston to Camden (formerly cable worked) the fireman would get along the framing, and pour wet sand down a pipe. Even then 10 minutes would sometimes be lost with greasy rails, but the Bloomers could make this up in running to Rugby.

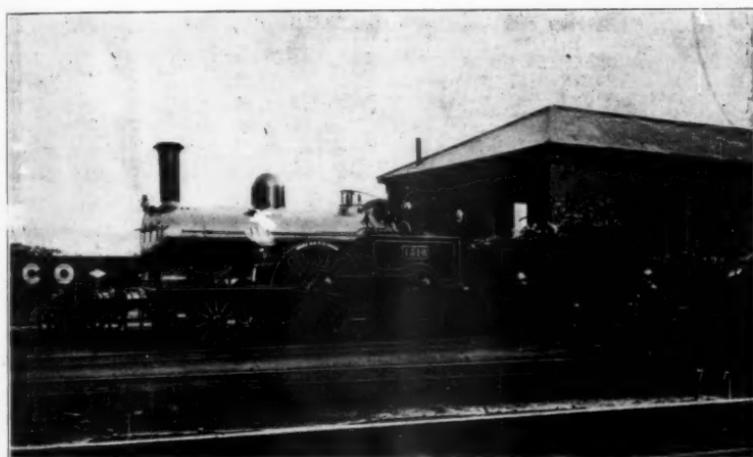
Much interest was aroused by the Duddeston Viaduct at Birmingham, extending from Bordesley to Curzon Street. The remains of this are today a classic railway mystery, the most likely solution being that the G. W. hoped to run to the North over the Grand Junction. But the G. J. became part of the L. N. W., and the G. W. made a route of their own, via Snow Hill.

Water troughs needed some care in those days. Unless the scoop was promptly pulled up as the tank filled, a great rush of water would wash away the tool-box, food-basket, and

overcoats, and probably most of the coal, too! Now there are overflow pipes and gauges to indicate the water-level.

Hand-brakes also required skill, as the weight of the train had to be managed by screw-wheels on engine and van.

Runaway engines were not unknown. No. 307, Trevithick type, moved off at Walsall under 10 lbs. of steam, whilst the men were fetching oil and sand. The signalman turned her through the station, thinking the driver was joining his train earlier than usual. The engine ran on to Bescot Junction, where the steam gave out. It was remarked that the fireman



L. & N.W.R. "Newton" Class, No. 1516 "Byron." Original form, as built by J. Ramsbottom, 1866. Photo. from the Bleasdale Collector (now owned by Loco. Pub. Co.)

ran after the truant at ten times the speed of the latter! Another engine ran away from Abbey Foregate Shed, Shrewsbury, and overtook a passenger train at Donnington, along the Stafford line.

In 1863 an old Bury engine was kept at New Street, Birmingham, for filling footwarmers. Mr. Matthews and another cleaner from Vauxhall Shed attended to this, and had to fire up ready for the 6 a. m. Liverpool express. Coke was burnt, and a tall chimney fitted to carry off the fumes. Two years later the engine was removed, and a hot-water boiler installed,

into which the foot-warmers were put ready filled, and boiled up.

Another Bury engine did shunting work at New Street, and being a light weight would sometimes run away right through the South Tunnel before the brakes would hold. A railway policeman stood at the end of this tunnel, at a spot called the "hole in the wall", to watch that goods wagons did not break loose, the grade being awkward.

In 1863, a driver named Makepeace was killed through inadvertently climbing on the tender, whilst passing under a bridge at Kenilworth. He was on one of McConnell's Bloomers, small class, working a passenger train from Leamington to Birmingham. The large Bloomers were forbidden this section owing to the low bridges, but even so, the tragedy occurred.

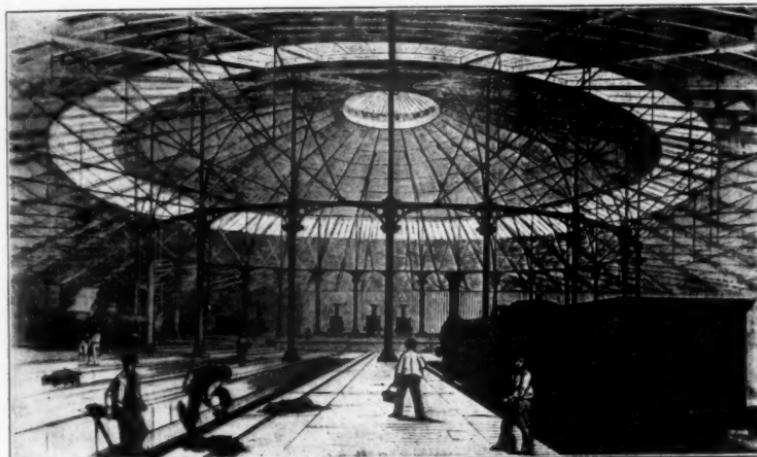
In 1866 a Leeds train had detached some Sheffield traffic at Guide Bridge, on the old Manchester, Sheffield and Lincolnshire, when it was suddenly buried in runaway goods wagons. These were off a train that had run back down the incline from Greenfield. 16 wagons were smashed and the goods guard killed. The driver of the Leeds engine was injured and the fireman (Mr. Matthews) buried under a heap of coal. This engine was No. 1402, a "DX" goods of the Ramsbottom class. Numbers of them are still running, as rebuilt by Webb.

Mr. Matthews once worked a football excursion to Crewe. Whilst waiting in the siding, examining the engine, a gentleman came along and asked if anything was wrong. On being told all was well, he asked where the driver came from, and smilingly bade him good-day. This, it appeared, was Mr. F. W. Webb, of "compound" fame.

Mr. Matthews began firing in 1863, and after 7 years at that work was driver for 47 years, retiring in September, 1917. His father drove the Trevithick engine "Harpy", and once ran off the line in Newton cutting, being badly shaken. He had 23 years service, his three sons all becoming enginemen. He related that the first Grand junction train from Curzon Street, Birmingham, in July, 1837, had engine No. 8 "Wildfire", a 6-wheeled single driver. Crowds of people gathered along the line and gave loud cheers. The carriages were named "The Greyhound", "The Swallow", "The Liverpool" and "Birmingham Mail", "The Celerity", "The Umpire", "The Statesman", and "The Birmingham and Manchester Mails."

Bank engines were regularly used for years on the North Tunnel, Birmingham, which had a steep grade. Three Trevithick single-wheeleers were at Monument Lane Sheds, and often required help up the tunnel incline, and sometimes as far as Dudley Port or Wolverhampton. The bankers sometimes pushed behind, but later this was forbidden. They had handworked sand-pipes at first, but boxes were afterwards fitted. The coaches weighed 9 to 12 tons, and 6 or 7 of them usually formed a train.

New Street Station is now used mainly by passenger trains, but before the Aston-Stechford line was made, goods and min-



Camden Roundhouse—L. & N. W. R. R.—About 1847.

eral trains went via New Street. These would stop to take on the bank-engine. Some were iron-stone trains from Northampton to Round Oak Iron Works, G. W. R., via the spur line at Galton Junction. G. W. engines took them forward from Smethwick Junction, and left the return empties in the sidings to be picked up.

At Vauxhall, Birmingham, there were old rails on stone sleepers, with wooden spikes; some of these sleepers now support the embankment near Vauxhall Station, and they also were used to make a platelayer's cabin, and part of the platform at

Perry Barr Station. The old Vauxhall engine-shed had a turn-table, and held 12 engines. A coal yard is now there.

Fairbairns' 5 ft. 0-6-0 goods engines worked wagons from Curzon Street to the Midland Exchange sidings, as many as 100 wagons on one train. The first train from Curzon Street to Euston, London, had the Chairman (Lord Ward) on board, and made the run in three hours.

Before the Stour Valley line was made, "packet" boats on the canals conveyed people from Wolverhampton, etc., to Curzon Street, connecting there with the Manchester trains over the Grand Junction route. The boats stopped nearly opposite the present Proof House Junction, there being a subway to the station platform. Canal boats also waited for the trains at Dudley Port, to take passengers to Old Hill and Cradley.

Mr. Bowker started work at the Vauxhall shed, where he was cleaner for a few months. He then went to Monument Lane sheds, and started firing there. At 20 years of age he took on extra driving duty, and went to Walsall during a coal strike. At this period he worked a 4ft. 3in. coal engine, No. 845, on a Hednesford to Liverpool and Manchester coal train, doing the return journey in 12 to 14 hours. Later he worked a Walsall-Stafford coal train. Once, on arriving at Crewe, he saw the late Mr. F. W. Webb (designer of the "Queen Empress" and other compounds) on the platform, who asked how long he had worked that train.

Mr. Bowker was 33 years at Dudley shed. For 18½ years he drove No. 2500, a 4ft. 6in. tank, between Dudley and Derby. Other engines that he drove were No. 993, a coal engine; No. 208 "St. Patrick", Trevithick type; the 5ft. 6in. Bury type; the old "Precursors"; and he fired on the 7ft. "Bloomers", Nos. 997, 998, and 1000, driven by W. Clark.

Mr. Bowker retired in April, 1922, after a total service of 52 years. His father served the Company 62 years.

An episode on the Great Western Broad Gauge may be added here:

About 1840 a demand arose for engine drivers to work the newly-opened G. W. lines. Several "banksmen", or colliery drivers from Tyneside or Lancashire, came south for this pur-

pose. Among them was one Michael Almond, of Newcastle. He came down by sea, to work under Gooch, himself a Tynesider. Almond was a fine type of man, unlettered, but honest, and skilled in handling machinery. He invented an improved slide-valve, that was tried on a goods engine, the "Shrewsbury." Some competition arose among the drivers of the 9.15 Bristol express, then the longest non-stop run on the G. W. R. On May 11, 1848, Almond drove the new 8ft. single "Great Britain" on this train. On arrival at Dideot, Gooch approached the engine, watch in hand. "Do you know how long you have been coming from Paddington?" he asked the driver. The latter, suspecting a complaint, said he did not think he had lost any time. "Lost time!" shouted his chief, "You have done it in 47 minutes!" The distance was 53½ miles. It is understood that further racing was immediately forbidden.

The speed sounds commonplace enough, now, but at the time it was something of an adventure, for the original rails were only 45 lbs. per yard, of iron "bridge" pattern. The load was 4 coaches and van. Fireman, Richard Denham. A card was printed, giving particulars of Almond's famous dash. The engine and driver were afterwards the models for Frith's well-known painting, "The Railway Station".

Michael Almond died in 1878, aged nearly 70. (These particulars have been kindly supplied by Mr. A. Beasley, formerly of the G. W. R. service).

Several minor incidents may be thus summarized:

In May, 1867, a Trevithick 2-4-0 outside cylinder tank was working a Walsall-Birmingham passenger train. On starting from Great Barr the R. H. little-end broke, but after 40 minutes delay the men uncoupled the damaged side and went forward to Vauxhall shed with the other.

Nov., 1870: DX goods engine No. 662 worked the 6.00 p. m. goods, Curzon Street to Wichenor Siding, for Midland exchange traffic. At Fosseway Crossing, 1 mile from Leichfield, the train suddenly ran into some cattle that had strayed. 8 wagons were derailed. It was very dark, and at the time goods engines carried only one green light, which gave little light on the track.

Stephenson's remark concerning the "Coo" thus had an unusual illustration.

Another old engine, No. 1034, made her first trip Feb. 17, 1871, being painted green, then the standard color. Near Sandbach, whilst working the 2.30 Liverpool to Birmingham fast goods, she was run into by a salt train that had over-run the signals. 1034 was overturned and the men were thrown off, but were not much hurt.

On Jan. 13, 1875, No. 1862, Fairbairn type goods was on a Stoke to Birmingham goods. Soon after passing Four Ashes the train struck the rear of a goods from Liverpool, which had been held up by fog and greasy rails. A smashed brake van and buffer beam resulted. The Liverpool train should have been an hours' run in advance.

A Dudley to Walsall local was stopped at Walsall signals in a thick fog, Dec. 5, 1880. The calling-on arm was lowered for the train to proceed slowly, but on doing so, the driver suddenly saw another train just in front. He pulled up, and shouted to the passengers to keep their seats. Some comments on the sudden stop were made, but all the passengers were safely conducted along the line to the platform.

The Society has received the greetings and best wishes of The Newcomen Society through Mr. H. W. Dickinson, Hon. Secretary. This Society has for its purpose "The study of the History of Engineering and Technology." The headquarters are at the Science Museum, South Kensington, S. W. 7. They have already done much that is of value and any of our members who wish to join can secure application blanks from our Recording Secretary, or can write Mr. Dickinson direct.

Mr. H. D. Forsyth, Swampscott, Mass., announces that he has been appointed American representative of the Locomotive Publishing Co. As our members know, this company publishes the magazine "Locomotive" and also photographs of locomotives. Mr. Forsyth is in position to furnish our members with lists or information that any of our members wish.

Interesting Notes.

By H. A. FREEMAN.

One night in the middle seventies the night freight on the Willimantic Branch of the Boston, Hartford and Erie, pulled into Willimantic on time with the engine crew feeling tip-top. That Boston gin is great stuff for making a fellow feel good. But when they got off the engine they found they had only two ears. Where were the others? After much high-power brain work they decided that they must have lost them off and if they went back they could probably find them. So they set off the two ears they had, and started back over the line, as the boys say "h—l bent for election", as the sooner they found them the sooner they would get back. After about half an hour's run they found the others in the sag just outside Pomfret; and with such a bang and crash that the conductor and brakies who were in the buggy dreaming of the beauties of Atlantic Ave. woke up. Then everybody sat around sober-like while the moon came up and the wrecker came from Boston.

When in 1849 the New London, Willimantic and Palmer R. R. was open to traffic, a grand free excursion was given to Stafford, Conn. The grandfather of the writer was half owner of a typical New England cotton mill and mill village at Eagleville, and of course being a probable source of revenue was invited on the excursion. Gen. Palmer, the president, was on hand, and everything went off in great shape under his direction.

President Palmer in some way learned that there was a veteran of the Revolutionary War, named Bingham, on the train, and he was delighted. Sending for him, Palmer talked over those stirring times and then presented him with a pass for life on the cars, together with the privilege of stopping any train at any point to get aboard, and with instructions to conductors to stop trains opposite Bingham's house (he lived very near the line at Mansfield Depot) to let him off if he so desired.

Locomotives Built at Sacramento Shops.

By D. L. JOSLYN.

When James Marshall discovered gold at Coloma on the banks of the American river in January 1848, the making of California as a state began. For when the news of the discovery of gold reached the ears of the world people began to flock to California from every quarter of the globe, coming via sailing vessels to San Francisco and thence up the Sacramento river to Sacramento, which was the starting point for the gold fields, or overland via ox team. Sacramento was the starting point to the various gold fields and mints and was the general headquarters of the miners, when they came in from Hangtown, Roaring Camp, Dutch Flat, Chinese Camp, French Gulch, etc. It was also the starting point of the stage coaches which radiated in every direction, going as far north as Portland, Ore. It was also the starting point of the Pony Express, that hardy band of men who transported the important mail from the West to the East and return, riding on fleet ponies over the mountains, across the deserts and through the trackless wilderness where lurked the wild beast and savage Indian.

Small wonder then, that when the first railroad was built, it should be built from Sacramento, and when the transcontinental R. R. was projected it was from Sacramento that it was started, and her citizens were the ones to finance it.

While the road was building the locomotives were purchased from the various locomotive building concerns, and were brought around the dangerous Cape Horn to San Francisco via sailing vessels, where they were unloaded and then loaded into river schooners and brought to Sacramento where they were assembled and put into service.

When the road was completed in 1869 the company had locomotives from nearly every locomotive building concern in the country, including one from Booth & Co. of San Francisco. The Booth locomotive was an 8 wheeler and was built for the Sacramento Valley R. R., but upon its arrival at Sacramento on board the schooner, A. Lincoln, the C. P. R. R. unloaded it and put it into service on their lines, being at the time hard pressed for power.

Mr. E. F. Perkins was General Master Mechanic of the C. P. R. R. up until late in 1869 and was succeeded by Mr. A. J. Stevens. Mr. Stevens was a Western man and had faith in the West. He was of the opinion that the C. P. R. R. could build their own equipment here at Sacramento Shops, as they were equipped with an iron foundry, brass foundry, blacksmith shop, etc., and were making arrangements at that time for a rolling mill, which was later built.

He finally succeeded in convincing the board of directors, and in 1872 they permitted him to construct 10 locomotives at Sacramento Shops. Four of these were 8 wheelers and six of them were 10 wheelers.



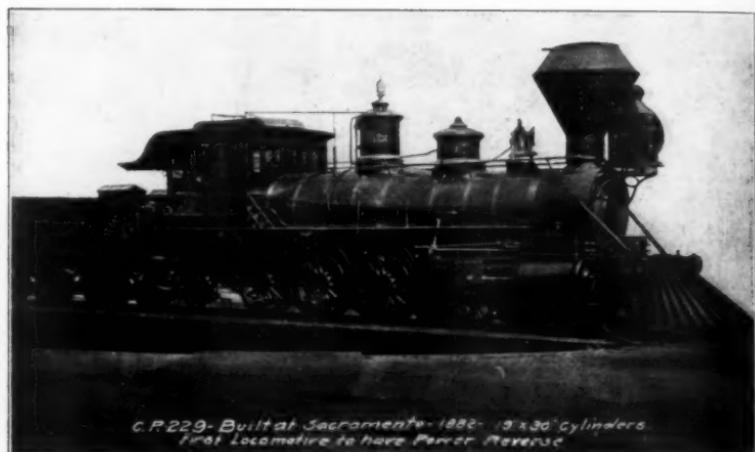
Central Pacific No. 173. Built by C. P. R. R. at Sacramento Shops, 1872.
A. J. Stevens, M. M. First Loco Built at Sacramento.

The eight wheelers had cylinders 17"x22" and drivers 72" in diameter, weighing in working order 25 tons. The 10 wheelers had cylinders 17"x24" and drivers 63" in dia. and weighed 35 tons. The 8 wheelers were used for valley passenger service and the 10 wheelers were used for mountain work on both freight and passenger.

I present herewith a photo of the 173—one of the 8 wheelers built at that time, and in fact was the first locomotive ever constructed at Sacramento Shops.

You will notice that she is a very graceful machine, and is equipped with air brakes, and has an attachment whereby the bell can be rung from the cab by a steam arrangement, which could be operated while the fireman was busy throwing in wood or shoveling coal, bell ringers not having been invented at that time. Also take notice of the stack, which was the C. P. standard at that time and permitted the burning of either wood or coal, by a slight adjustment of the grates. I can not show you a photo of the 10 wheelers as I have been unable to locate either pictures or negatives of those first 6—10 wheelers.

These 10 locomotives were given numbers that had become vacated from locomotives that had been sold or wrecked or scrapped.



From 1872 until 1882, Mr. Stevens built a number of locomotives including switchers, 8 wheelers and 10 wheelers. In 1882 he built the #229 shown herewith. As you will notice it is a 12 wheeler and if you will look further you will notice that there is two valve rods and that the valve is quite long.

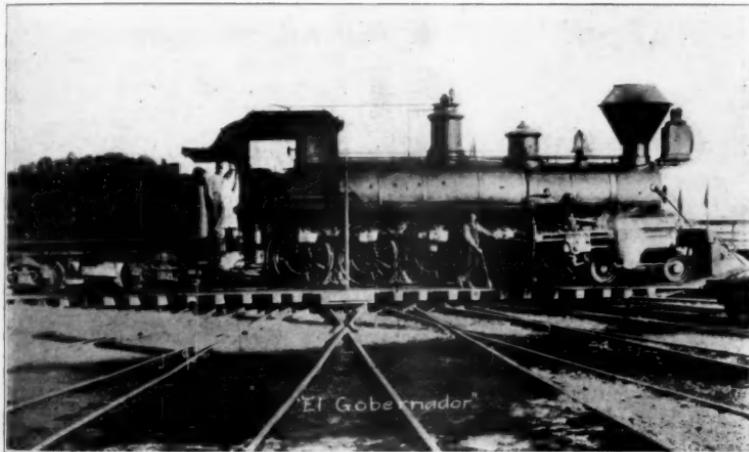
This was due to the fact that the locomotive was equipped with double valves, one set mounted on top of the other and worked as follows. One valve worked constant at full stroke and was used to reverse the locomotive. The other valve was

arranged to cut off at whatever point the engineer desired, and of course had to be reversed as well as the reverse lever.

The main valves were quite heavy and with the added weight of the cut off valves it was almost impossible to reverse the locomotive, so Mr. Stevens and his Chief Draftsman, Mr. Geo. Stoddard, worked out an arrangement to assist the engineer in throwing his valves. This was worked by hydraulic pressure taken from the fire box above the mud ring.

This arrangement was mounted under the cab, but does not show very plain due to the picture being quite dark in that part due to the shadow.

This locomotive had cylinders 19"x30", drivers 48" in dia. and weighed around 70 tons in working order. She was de-



Central Pacific No. 237—The "El Gobernador"—Built by the C. P. R. R. at Sacramento Shops, 1883. A. J. Stevens, Master Mechanic.

signed to handle freight trains on the Sierra Nevada mountains which has a grade of 105 ft. to the mile and rises from an elevation of 30 ft. at Sacramento to 7017 ft. at Summit.

This locomotive took care of 19 loaded cars on this grade in fine style and was altogether so satisfactory that the Cooke Loco. Co. was given an order for 20 more just like her, and the old #229 was sent to the Cooke works as a sample.

One word more—the C. P. 229 is still in service in 1923,

having been rebuilt twice in the meantime. She is doing logging service in Oregon and is now C. P. 2925, class TW-7. Of course she now has the regular American balance valves in place of Mr. Stevens' old valves. As far as I can learn this was the first locomotive on the Southern Pacific System (which takes in the C. P. R. R.) to have a power reverse.

In 1883 Mr. Stevens built the famous "El Gobernador" (meaning "The Governor") No. C. P. 237. This locomotive was a 14 wheeler and was too big for the bridges when built and was kept at Sacramento Shops for nearly a year before she was put into service, while the M. W. Dept. strengthened the trestles and bridges. During that time, whenever a big party of people or a special train would pass through Sacramento the



Central Pacific No. 166. Built by S. P. Co. at Sacramento Shops, 1886.
A. J. Stevens, M. M. Equipped with Stevens Valve Gear and Valves.

El Gobernador was steamed up and pulled a long string of cars from 18th & B Streets down past the train shed and around on R Street.

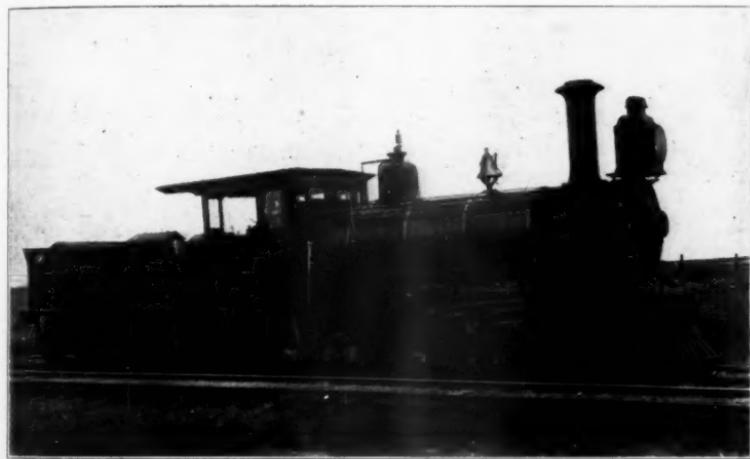
This of course caused a lot of interest among the passengers to see this giant go by.

She was finally taken to Sumner, now called Bakersfield, and was used there to assist trains up to Mojave (pronounced Mo-ha-vy). She was considered so big and powerful that it was thought unsafe to allow her to take sidings, so all trains

had orders when meeting the "El Gobernador" to take the siding. This applied to freight and passenger trains alike.

She was quite slippery due to the lack of weight on her drivers and did not last many years. She was finally scrapped at Sacramento in March 1894.

From 1883 until 1890 there was constructed by Mr. Stevens at Sacramento Shops very nearly all of the locomotives built for the C. P., S. P. and O. & C. R. R. About the only other power than what was built here was what was acquired through purchase of other roads.



O. & C. No. 45. Built by S. P. Co. at Sacramento, 1887. A. J. Stevens.
Equipped with A. J. Stevens Valve Gear and Valve.

The pictures of the 166 and 45 are fair samples of the class of power constructed by Mr. Stevens. If you will note the valve gear on these locomotives is very similar to the Walschaert valve gear of today.

The valves were separate, that is each end of the cylinder had a separate valve, and worked independent of the other. One valve was worked from the cross head and the other from the main pin. There were of course two valve rods and one was hollow, which allowed the other rod to work through it. This allowed one valve rod to work the forward valve and the other rod to work the back valve. This gave a very snappy locomotive and allowed a finer point of cut off.

Mr. Stevens put his sand boxes underneath the belly of the boiler where they were out of the way, which gives the locomotive an odd appearance. On some of his locomotives he put the counterweight on a line with his crank pin. I have never been able to find out the advantage of this, unless it was that it gave the wheel a more even balance. In talking with some of the men who worked for Mr. Stevens they agreed that that was his object. His locomotives gave good service and there was very few of them that never came back to the house under their own steam. There are quite a number of them still in service up in the logging camps in Oregon, but the valves have been joined in such a manner that they work as one valve the same as any D-slide valve. This of course required a change in the combination lever and an adjustment in the return crank.

Mr. Stevens died in 1889 and his fellow workers erected a bronze statue to his memory, in the city plaza. The statue stands on a great block of granite that was brought from the quarries at Rocklin on the line of the old C. P., now the S. P. System.

Mr. Stevens was a kindly man well thought of by all and a thorough mechanie. I forgot to mention that Mr. Stevens built a number of local locomotives at Sacramento in 1883-1884 for use at the city of Oakland, hauling the locals that connect with the Ferries.

Most of these are still in service on private lines, such as cement works, etc. In addition to the many locomotives built by Mr. Stevens, he rebuilt a large number of locomotives bought from the builders. He also increased the tank capacities of all of the tenders, it having been the rule in the past to make tenders of 1200 gallons capacity. All of the tenders built by Mr. Stevens had capacities of 3000 gallons or over.

Locomotives are still being built at Sacramento Shops, some 73 having been built in the past 3 years. This included, Consolidations, Pacifics, Moguls and Switchers. There are 3 locomotives under construction at the present time.

The photograph of the "Conness" that appeared in our last bulletin was from the collection of Mr. Herbert Fisher, not from Mr. Joslyn.

In a recent visit to Newark, N. J., your editor called on Mrs. Powellson, daughter of the late James Hermon French. Through the kindness of Mrs. Powellson he has been allowed to reproduce for the members Mr. French's paper entitled "Early Railroad Times" that appeared in the Railroad Employee in 1910. This paper is by far the best of Mr. French's works and illustrates the early types of railroading that this country saw over fifty years ago.

Early Railroad Times.

One of the few remaining veterans who were permitted to take an active and prominent part in the upbuilding, maintenance and development of the American railroad is James H. French, of Dorchester, Mass., who was born in North Bridgewater, Mass., August 30, 1840, and commenced his life's work as assistant to the agent of the old North Bridgewater station of the Fall River Railroad (now the Brockton, Mass., station of the New Haven) in 1854. Mr. French voluntarily severed his connection with active railroad life on July 1, 1901, when he resigned as superintendent of the New Haven's Plymouth Division and retired to private life at his home in Dorchester, with a record of forty-three years' faithful and intelligent service with the Old Colony and its successor, the New Haven system, augmented by a clean and honorable record and the lasting love and regard of thousands of subordinates.

Shortly previous to his retirement, or, to be specific, on November 13, 1900, Mr. French read a paper entitled "Railroad Reminiscences" before the New England Railroad Club, which was highly commended by the membership, but which has never been given the general publicity its excellence warrants until this time, when, with the permission of the veteran official, the *Employee* is permitted to present this interesting and in many essentials remarkable document to its readers, as follows:

It is said that there are human beings, not of the wiser sort, who appear endowed with a propensity to rush in where angels fear to tread. I beg not to be catalogued in that class, for I certainly approach my subject of this evening with great

fear and trembling, having recently read an able paper, in which the speaker used the following language:

"However attractive reminiscences may be, they are in one respect not advisable, for they are, I am quite convinced, a sure sign of age. No man should thus give any indication that years are pursuing him with success."

I have to acknowledge that I am a veteran in the service and that I have not wholly escaped the ravages of time, but I hope for some years of activity yet ere I am forced fully to sympathize with one of our old ex-conductors whom I had not met for some time and who, in response to my inquiry why he had ceased his occasional calls upon me, replied: "Mr. French, I have arrived at a point where I am ashamed to be seen outside the graveyard!"

I presume that because of a long term of service it may be supposed that I must have witnessed many and divers wondrous things in railroad life, whose recital should be of thrilling interest, but my experience having been in quiet old New England, and almost wholly upon one system, the story cannot have the variety of a wider field.

It is quite a general belief that in a veteran's story (especially be he of the railroad persuasion) distance is apt to lend enlargement to the view, and therefore you may be expecting to be obliged to listen to exaggerated reminiscences of an imaginary past. If so, you will be disappointed, for I shall repress all inclination to undue inflation of facts, though I am by no means an "Anti-Expansionist."

I began railroad work at a very early age, and at such distance from the present time as to enable me to know some of the early generation of railroad men—at least, in the operating department—men who commenced with few rules to guide them, and little experience from which to formulate other rules. "Thumb rule" largely prevailed, and the necessity for an elaborate "Standard Code" had not been felt. Trains were few, running time slow, and such trains as were run were (as one president informed a complaining public) "due when they arrived."

Stations were not as frequent as now—junctions a rarity. The public felt well served with a speed of twenty miles, with, in the winter, a roaring wood fire in the middle of the car, as

compared with the former stage coach, its six miles an hour, and its polar atmosphere in the cold season. The steam road was fully established, and no experiment, when my labors began, yet it was less than a decade previous that the original Old Colony company was seeking a location through the present Dorchester District of Boston, and a town meeting was assembled in opposition, at which the free and independent voters were exhorted to rise in their might and "drive the monster into the sea," and so well did they succeed in forcing the road to the water's edge that twenty-five years later some of the self-same opponents were beseeching the selfsame corporation for a new line, farther inland, through the fairest portion of that suburb, where the community was suffering from lack of transportation facilities.

However, at the time I began, the weight of opposition had vanished with the stage coach and baggage-wagon of former days. I started in at a way station of moderate importance, at the tender age of thirteen, and became the sole assistant of the easiest-going agent that ever drew breath. As he was willing and I was willing, I was soon enabled to while away the hours by building fires, sifting ashes, sweeping, dusting, transporting the United States mails, handling freight, baggage and switches, shoving freight cars, selling tickets, helping on the accounts, and doing anything else that militated against his ease and comfort. Three years gave me a sufficiency of such multifarious labors, and used me up so that I relinquished the position, threw up a princely salary of \$14 per month, and quit railroading for the time being.

In those days we had winters that were winters, and the little twenty-ton engines had hard work butting their way through the huge drifts.

Snow plows we had, quite considerable affairs, nearly as high as the headlights, and bolted to the front fo the engines after removal of the "cow-catchers," as we then termed our pilots. After a storm these plows were taken off and the engine probably ran pliotless till the next snow fall.

Injectors were not as yet, and pumps were a principal and troublesome factor in winter weather, for they were eternally having to be "thawed out."

"Drophooks" had not been displaced by "link motion,"

nor "woodburners" with their enormous stacks, by "coalers."

But there was one advantage in wood burning—you always had a tenderful of "replacers," and what those oldtimers could do with engine wood, in the way of rerailing, was astonishing. And the wood served equally well to fill a gap in a broken rail (and there were many of these) to permit a train to pass over.

Engine wood served almost as varied a purpose, in its way, as the ladies' hairpin of to-day.

Self-reliance was the main spring of action in those distant days. There was no telegraph in use, and to get "off the iron" meant get on again through one's own exertions, with what little help could be picked up on the spot. To break down meant to get her in shape and finish the run. There were no "hostlers" at the end of a run, and all minor tinkering of the machine devolved upon the engineman.

Valve stems stripped, valves cocked, pump-checks stuck, side rods broken, crank pins sheared, cranks broken (for most of the engines were "insiders") and these, with a choice assortment of other ills, scarce within the knowledge of the present generation, were attendant upon the engineman of that date.

After four years' absence I again entered the ranks, this time as agent at the station where I was before assistant. Meanwhile the telegraph had been introduced and we had offices in the principal stations, but what operators! Paper was almost universally used, and a good "sound operator" was a rarity. But scarce any attempt at train dispatching had been made. It is true that conductors and enginemans were permitted to use the wire to arrange "meets" with one another in case of delay, but this amounted to little in actual practice, for a train arriving at a schedule meeting place would probably wait ten or fifteen minutes, then call the next office for as much longer, and raise it, only to find that the opposing train had just departed, upon which all hands settled down comfortably (or uncomfortably, as the urgency of their case might be) for a further wait until the expected train's arrival.

During my absence from the road, coal had driven out most of the wood burners, and the latter had been altered over, and there was no more "wooding up," that picturesque scene when half the male passengers were helping pile on the sticks, with the other half as spectators.

But even the picturesqueness of "wooding up" was as nothing to "watering," when, as not infrequently happened in the dry season, that fluid had to be taken at some between-stations brook, and all hands formed a line, the leather buckets were unhung from the rear of the tender, and the aqueous supply therewith transferred to the tank.

Also, during my absence, the ticket department had undergone radical changes, and numbered tickets had supplanted the old form which required the written signature of the selling agent, or, later, the printed faesimile of that of the superintendent, and which were sold, collected, re-issued, re-sold, re-collected, again and again.

Checking of baggage had become general, superseding the use of chalk. Freight trains began carrying cabooses, affording a crumb of comfort to the poor brakemen who, before, had no shelter for themselves or their clothing, and whose frozen dinners in winter time were only made eatable by first stuffing the pails down the engine's escape pipes. A tough time these poor fellows had, and the freight man who did not carry one or more marks of injury must have borne a charmed life.

There was scarce any attempt at uniformity in height of freight cars or drawbars. Many cars were so low as to necessitate the use of three-link couplings, added to the fact that one car would have big leather corner buffers and the next inside deadwoods, with but a single ladder upon a box car, leaving the brakeman to climb the opposite end as best he might. A large proportion of freight cars were four-wheeled.

There were no "bridge-warnings," and the wonder is that a man was left to tell the tale.

As years rolled on and the public grew to breathe freer in the new mode of traveling, there began a crusade for purer air and better venilation, and "monitor tops" upon passenger cars came in fashion, but the matter of ventilation seems almost as far from a satisfactory solution to-day as then.

Attempts at automatic coupling of passenger coaches were current in the fifties, and a number of Old Colony cars were supplied with such devices, but they included the use of a link between the couplers. A little later train-brakes were devised—that of Creamer of New York—consisting of a heavy spring normally wound in a drum encircling the winding staff, and op-

erated by the engineman pulling the bell cord, which released a pawl and the spring wound the brake chain instantaneously. The application was sudden and severe, and something was apt to give way, and this fact, and the fact that the spring must be rewound by hand power after each application, made the apparatus impracticable save for emergency use.

It was long after this that the Miller platform and hook superseded the old platform (that always "telescoped" in case of accident) and the link and pin coupler, and that parlor and sleeping cars came upon the scene. For many years such a thing as a smoking car was unknown, and passengers went into the baggage car to indulge in the weed.

Time tables were crude affairs; instead of train numbers, conductors' names were used upon some roads, and the schedule stated that "Jones" would meet "Brown" at Jericho.

Jones might die the day the time table took effect and Brown be discharged, but "Jones" and "Brown" met regularly at the appointed place, day by day, notwithstanding. The time table of one Boston road showed where trains should meet between stations upon double track, indicating the same by columns of daggers, asterisks, and other reference marks, but generally there was deficiency of information, rather than excess. In the time tables of some roads the schedules merely gave the leaving time at the initial point, and not a figure or other indication to denote where the train went, or when it might be expected to get there, and yet the run covered the whole length of a single track road!

The runs of certain trains of my division extended over some miles of single main line of a connecting road whose trains, whether passenger or freight, had absolute right of track over my trains by rule. It was desired to reverse these rights as to one train and give us the preference, and the superintendent of that road accomplished this important change by an obscure foot note to which attention was called by a reference mark, made by upsetting a type and using the bottom imprint, which resembled a couple of fly specks.

The same official so timed some of his trains that they "crossed" midway between stations on single track, and then applied a corrective in the form of a special rule saying that they wouldn't so cross. And this rule was almost the only one

one of a large page of rules that did not end with the phrase "unless otherwise ordered." A further peculiarity of the same time table was its arrangement with the station list and train columns horizontal instead of vertical—a practice hardly found elsewhere.

With the advance of railroad enlightenment came an era of development in the direction of speed, comfort, safety and economy, and when once started it seemed as if everybody plunged right into it, and inventions as numerous as the sands of the sea, with methods and suggestions supposed to fit the case, were evolved, most of which died a natural death. Until the Revere accident, little had been done as to block signalling, and the late Thomas S. Hall did a great work when he devised his system, though it was early supplanted by the "rail circuit" of the Union Signal Company, which circuit is now used also by Hall's successors.

Speaking of inventions, most were impracticable, some ridiculous, others impossible. I was at the Mechanics' Fair some twenty years ago and naturally drifted to where the railroad appliances were on exhibit, and there I found a farmer-looking individual expounding to quite a little crowd upon the merits of an invention of his own. It was in the form of two immense straight springs projecting away in advance of the nose of the pilot, and intended as an additional factor of safety where cattle were on the track. The operation was simple—the springs being breast high, were to hit an ox or other large beast, fly open on the touch, and throw the "critter" off the track and out of the way of the pilot, and avoid the chance of derailment. "Only a few weeks ago," said the inventor, "there was an awful accident on the Grand Trunk Railway, up in Canada, caused by running over a heifer, where a freight train was ditched, a half dozen persons killed, and \$30,000 damage caused to rolling stock, all of which might have been avoided by my invention." Quite an indignation was worked up on the part of his listeners, and one person went so far as to say that these soulless corporations ought to be forced by law to adopt such lifesaving devices, if their own regard for pecuniary consequences failed to teach them! I stepped into the ring and remarked that I had recently come from the vicinity of that accident and did not see how the invention in question could have

prevented it, as the springs stood breast high, while the heifer was lying asleep on the track. "If that is the case," said the man, "it would not have prevented it, but I did not know the fact." I said that I could offer a suggestion that would fit such cases. Says I, "You have your engine, your pilot and your springs—now run a pole out beyond the springs to punch the heifer and make her get up, so your springs may knock her off before the pilot hits her!" The crowd laughed, but the inventor soured on me.

I know you will pardon one story more, as it relates to our old friend, the late J. T. Furber, general manager of the Boston and Maine. At the time when inventive genius was specially directed toward train brakes, he was terribly bored by a man who had devised a brake operated by means of a drum upon the driving axle, which wound up a chain attached through the train to the brake apparatus, and which device Mr. Furber saw was crude and illy contrived. Finally Mr. Furber bade the man take his model and begone. I presume he said it in a forcible manner—he usually did so express himself when in earnest. Be that as it may, the inventor was sadly aggrieved, and as he had for a financial backer a well-known lawyer, he got the latter to complain to then President White that Mr. Furber had not given him a fair show. The president got quite interested in the invention and told the lawyer that Mr. Furber was a rough diamond, but good hearted, and that if he would bring the model to the president's office he would have Mr. Furber called in and they would ascertain his objections. So that arangement was put in effect and the inventor and the lawyer duly put in their appearance, and Mr. Furber was called. President White asked his objections, and he answered he had none, only the thing was good for nothing. The president asked why. "Well," said Furber, "let us find out from the inventor." So the general manager proceeded to question and finally came to the point, "Now, after your drum has wound up the chain, and applied the brakes and the train is stopped, we sometimes like to start the train again. Now, how do you propose to release them?" Sure enough, there was no provision for unwinding or returning the slack chain back to place. The inventor said he had not yet perfected the brake, but presumed he could overcome the difficulty. "I can tell you how to do it," said Mr. Furber.

"How?" asked the man. "Hook another engine on the other end of the train and haul the chain back!" No more was heard from that brake!

But to resume: Miller, with his platform and hook and close coupling made a great step forward. The Tyler and other safety switches, though now replaced by the point switch, were marked advances in the line of track work, and this department has been further improved by steel rails, and of greater length, slip switches, movable and spring frogs, and modern methods of laying.

As rates began to diminish, economy began to be more closely studied, and with some marked results. A case in our own practice I will cite. The regular engineman of a certain train had rather a light machine for its work, and he was continually complaining of lack of steam, and was habitually late. He took a vacation and a bright young man ran in his stead. The substitute ran the train under precisely the same conditions, so far as work and surroundings were concerned, had all the steam he could use, was on time at all stations, and burned some nine hundred pounds less coal per run of 100 miles. With coal at the then prices, the young runner was saving to the company two-thirds his daily wages. Economy in coal began to be looked into at once! An old railroader of large experience used to say that an inch on the engineman was worth more than an inch on the cylinder. Some men never stall with a load, which others can scarce get down a grade without "doubling."

In quoting from the old railroader just mentioned, I am reminded of one of his stories: Years ago the Sullivan County Railroad was an impecunious concern with but a single locomotive, and by reason of hard and constant work this machine was in a most unreliable condition, necessitating frequent borrowing from the Vermont Central road while repairs laid her off. So frequent became the calls that at last the Vermont Central master mechanic was out of all patience, and finally, upon another call, told a daredevil sort of engineman to take his engine and go run them to the hot place. The engineman lost no time in getting to the junction, hooking on to a mixed train and getting started. The train was some two hours late and he ran as if he intended making it all up, and it seemed as if he cut across curves rather than went around them. When

the conductor reached the rear platform of the hind car, there he found the old express messenger, whose usual place was in the baggage car ahead. Remarking upon his being there, the messenger replied that "if anything should go off the iron at the speed they were being run, he guessed the tail end would be the only part left sticking out of the ground, and he thought he would get there while there was a chance!"

Upon the advent of air brakes the average engineman stood aghast, and seriously claimed increased compensation for manipulating them. An engineman of the present day would rebel at the suggestion of a trip without the air, and the present brakeman would lie down in despair!

Our first driver-brake was for emergency only, and was operated by a small lever in the footboard, which was operated by a kick from the engineman's foot.

Interlocking was of slow growth in New England, and when introduced it was some time before the enginemens could bring themselves to implicit confidence in its indications, or to divest themselves of the idea that they must hunt all over creation for switch targets in addition to the semaphores. And yet but a brief while previous not even switch lamps were employed.

What would the men of today think of running over an unlighted single track, upon a dark, gloomy night, with a "double-header" of thirty-six cars—mixed passengers and freight—loaded with troops, horses, cannon, caissons, ammunition, camp equipage, and accoutrements—with the old-fashioned car platforms, and loose coupled—at a speed of 40 miles, with no semaphore or mast signal, nor a spacing signal at a station? And yet this was common practice in Civil War times.

In the early days extras were seldom, and the trackmen did not always let their work suffer (nor their dinners often-times) from any fear of them. Irregular trains usually followed some train that could "flag" them, and the trackmen mostly relied upon such signals being worn. A leading railroad man of our city recently told me that when he was a track hand up country long ago they never displayed danger signals to protect their work, and sometimes the gang would go quite a distance to dinner, leaving a rail out and unprotected.

But there was another kind of "flagging" that did have to be complied with, and that was against opposing trains in cases

of delay, in the days before the telegraph, when a train had to work its way in this manner for a score of miles perhaps, and the flagman's lot was not a happy one!

The modern improvements are familiar to us all. We ride in parlor cars, in sleepers, are warmed by steam heat and lighted by gas and electricity, and have our meals served while moving at a fifty-mile gait. There is better discipline and less intemperance. The matter of providing in some degree for those who have worn themselves out in the service is beginning to receive consideration, and homes and reading-rooms are being provided in many cases. But I will not speak at length of these matters, for they are present with us, and I will return to the time of the Civil War, and some of its tribulations.

I was then station agent, and my duties included ticket selling. When the times began to pinch there was ten per cent. off from our wages. Then the premium on gold began its upward flight until 290 was reached, consequently gold soon disappeared, followed by silver, and lastly by the huge copper cents of that period, and "making change" became a serious matter. With our townsmen it was simply to charge up odd cents and collect when convenient, and I have a memorandum book showing page after page of entries from one cent upward. One cent seems scarce worth recording, but when one's wages were but \$35 and the aggregated charges often exceeded that sum, the old adage as to caring for the pennies was forcibly illustrated. I regret to say that some of the charges upon my book remain uncancelled to this day, and the interest account is simply enormous. I look at the book and sympathize with the Western editor who went over his list of delinquents and said, "Some have become lawyers, some doctors, some statesmen, some ministers of the gospel, and some have died and become angels in heaven, but they all owe me just the same!"

When change disappeared we were forced to use postage stamps instead; then certain moneyed institutions (notably the Concord Railroad of New Hampshire) issued "shinplasters," and we struggled along till the government put forth its postal currency and relieved the stringency.

At the commencement of the war there were no national banks, and State banks supplied the paper money, but unless the bank was near at home one might almost as well attempt

using brown paper, and travelers were obliged to make frequent change of their paper money (and suffer discount) or load down with bullion for their journeys. The establishment of national banks, and the government issue of greenbacks, gave us a currency good anywhere, and was a great boon to both railroad and travelers.

Soon after the war had set in in deadly earnest the government called for locomotives, and patriotism furnished all the wornout, doubtful specimens that could be spared, for which the companies received liberal pay. The next thing was to restock, and this proved a harder matter, for the increase in transportation created a lively demand for rolling stock, and the building shops were overrun with orders. Adding to this came the consequent rise in prices and the heavy premium on gold, and some roads were at their wit's end to find motive power for their business. The Manchester Locomotive Works built a 16x22 for us for a sum rising \$27,000, and then offered a bonus to take it off our hands. We also purchased one or two second-hand engines, and finally took two or three "scrap heaps" that had been purchased for junk by "Yankee Leonard," a noted scrap buyer of those days, repaired them and used them for some time to tide over with.

At this period the combining of small roads into larger systems had scarce begun, and each little road had its full quota of officials, though general managers, general superintendents, traffic managers, etc., were practically unknown. But at any important junction officials were as numerous as brigadiers in Washington at that time—you couldn't fling a stone and miss one.

The accounting departments were primitive affairs—there were few accounts and little complexity in them. No "tonnage" was kept by many roads; the dollars and cents were all they cared to record or to pay for recording, yet the annual report demanded tonnage. How it was arrived at in one instance I will tell you. The general freight agent produced some tonnage figures, ascertained in some mysterious manner, and the directors declared them too large—improbable. They were returned to the general freight agent and he halved them. Again they came back for revision, and this time he used three for a divisor, and the tonnage was approved as all right! As there

never was any further question as to the figures, it is presumed that they were correct!

As to the multiplicity of roads, even the most sturdy enemy of aggregation of today would scarce care to return to the ticketing and freight billing then prevalent, which, except in case of some immediate connection, required re-ticketing and re-billing for each road.

Some of the officials of those days, autoerats in their way, and considered giants, would cut diminutive figures in railroad management of today, but they served their purpose well and were suited to their era.

Some of them held queer ideas—some do at the present day.

One superintendent issued time tables only to trains whose time was changed, and a very important train which, because of uncertain connections, was required to keep clear of all other trains, happed to have no change in its schedule. Fortunately its conductor learned of the new time table, made the run (which, by the way, was on single track) and called at the office to ascertain why he was not supplied. He was informed that there was no change in his time. "No," replied he, "but the time of every other train on the road is changed and I have to dodge them all." He was immediately provided!

One president's maxim was "don't let anybody know that you don't know," and he gained a very considerable reputation thereby.

But the last score of years has produced enormous changes in railroad customs, and were the men, who a quarter of a century ago rested from their labors, to revisit the scenes of their former usefulness, they would scarce know "where they were at."

Each man is now a part of one vast machine, running in his own particular groove—some grooves wider, some less—and hemmed in by restrictions made necessary in a thousand ways, but which impair the measure of comparative freedom once enjoyed.

The transition from old to new methods, especially in the matter of operating rules and customs, was long in preparation, but sudden in its final coming, and the change is for the better, for the present volume of business, with its many complications, could never be done under former methods.

And now electricity has begun to encroach upon the larger domain of steam, and he is bold who contends that it will not eventually supplant steam as a motive power.

Another score of years may solve the problem in the affirmative, and some future reminiscencer may relate tales of our day as of an Antiquated Past.

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